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Prof. Heinz Gärtner

Welcome to the first afternoon session! It is about space and missile proliferation. In fact, these are two separate topics, but we will address both of them. We have excellent speakers to do so. The speakers in their first statement, as the organisers told me to say, are limited to 10 minutes, but we will have plenty of time for questions and answers later on.

Let me just give a brief introduction, since we do have two separate issues here and each of the speakers are specialists in either one. They do overlap, however, so I will ask the speakers to address the issue in a broader way – so we have one debate, not two different debates – and also to address emerging threats and challenges. On one hand we have the missile proliferation and the emerging missile threats. We have of course Iran, North Korea, Pakistan, India and other states, but in addition to missiles we can include nuclear weapons and weapons of mass destruction (WMD), because missiles are only really dangerous if they are connected with WMD. On the other hand we have space, and the challenge is how to prevent this potential use of space for military purposes. A special challenge, of course, is the dual use of delivery systems and space technology.

There is an inter-connection because there is a link between space-launch vehicle programmes and ballistic missile programmes, and if you look at several regimes they do address both of them. So what are the regimes and tools we have? First of all we have The Hague Code of Conduct against Ballistic Missile Proliferation (HCOC), also known as the International Code of Conduct against Ballistic Missile Proliferation. It is voluntary, but it encompasses both. On the one hand, there are measures against the proliferation of ballistic missiles and delivery systems, and on the other hand it addresses space-launch vehicle programmes.

We also might want to look at earlier and past regimes and how to improve them, and whether they are still sufficient. For example, how does the Missile Technology Control Regime (MTCR) link to the HCOC? Then we have the Outer Space Treaty in place, which of course does not include ballistic missiles. There is also the well-known Russian-Chinese CD [Conference on Disarmament] Working Paper to prevent an arms race in outer space, and we have the acronym PAROS for that.

Concerning space and the EU, we have the European draft of the International Code of Conduct for Outer Space Activities, which is also not legally binding, but it tries to map out guidelines to create and maintain sustainability, safety and security in space. But it is not only a European issue. In the US, as you may know, there was a debate about whether to join this agreement, and there were conflicting reports coming out of the State Department. The last thing I heard was that Hillary Clinton said they should join the agreement, but only if it does not restrict their missile defence programme and their national security, so we see another link between missiles and space.

Eventually I want to ask what impact this all has for the European space programme. If you look at the Lisbon Treaty, Article 189, does it have any impact on the EU? So I have an excellent list of speakers, who will tell you what they will talk about themselves. I asked them to speak in the order

of the agenda here, and I start with Sergio Marchisio. He is the chairman of the European Centre for Space Law. Please go ahead.

Sergio Marchisio

Thank you very much, Mr President. As you said, we should focus on two different issues: space and missile proliferation. I will focus my presentation, my brief intervention, on the role of the EU in ensuring security, transparency and confidence building in outer space. This is a role that, in my opinion, the EU would and could perform, even if the EU is not in itself bound by the Outer Space Treaty of 1967 as the European Space Agency is. But the political dimension of the EU should be taken into account in assessing this initiative that was initiated by the EU under the Title V of the former Nice Treaty, and which now is always under the Title IV of the Treaty on the Functioning of the EU (TFEU), namely the Common Foreign and Security Policy, the external action of the EU.

So what impact should it have on the European Space Policy that is developed within the other part of the EU involvement in space, namely Article 189 of the (TFEU), which refers to programmes for space applications, such as Galileo and Galileo Mission Segment (GMS)? It is clear that the two initiatives are absolutely consistent with each other. The initiative of the EU on the International Code of Conduct for Space Activities is consistent with the European Space Policy, which is developed in collaboration with the European Space Agency. But it is something different; it is a political and diplomatic initiative. It is submitted within the EU to a different procedural setting, because the Common Foreign and Security Policy is still under the Lisbon Treaty, something different from the other side, which involves the Commission much more, etc.

The EU got involved in this issue of the draft International Code of Conduct for Outer Space Activities in 2007 after the 22 years' moratorium on anti-satellite tests was broken by China with an anti-satellite experiment in space, which produced 2,000 pieces of dangerous and long-living debris. It was followed in 2008 by the engagement by the United States of a defunct satellite without creating dangerous, long-living debris and with a different procedural way – a very transparent way. It informed the international community and the United Nations, and gave some reason for this experiment and engagement, namely a big danger that could have created problems on the Earth. This explains the time.

Why? I think the EU understood that we are in a situation where militarisation of space has still not led to the deployment of weapons in space, and an arms race in outer space should be prevented. This is the political premise. Secondly, there are gaps in the present legal framework concerning the deployment of arms in space, namely Article 4 of the Outer Space Treaty (OST) of 1967, and if no action is undertaken the situation could lead to space becoming a more hostile environment than ever because there are different threats than the deployment of arms. There is the real risk of using space objects and assets in an aggressive way without deploying arms in outer space. There are some technologies that can allow the damaging or destroying of space assets that are very important for the

economic and security policies of space-faring nations.

So the main object of the initiative was to table a more workable instrument than the proposal for a binding treaty that was mentioned just now presented by Russia and China in February 2008 to the Conference on Disarmament. Then it was also a concrete response – a complete answer to a request by the General Assembly of the United Nations, which every year on the field of transparency and confidence-building measures asks member states to submit proposals for a more transparent and confident environment in space. The EU favours a pragmatic and incremental process. It is not comparable to a binding treaty because the draft International Code of Conduct for Outer Space Activities, as mentioned, has a voluntary character, a non-binding nature, something like the HCOOC, but it is important because it would be a first step towards something hardier in the field of space disarmament.

The main point is that such a code, and I have no time to enter into details, is a meaningful instrument to create an environment in which states would find development of hostile systems extremely difficult. So it is really something that helps achieve a certain degree of space security in space, which is different from disarmament but is a very important notion. Transparency and confidence-building measures, which have been useful in other fields of disarmament, can also be very useful in this sector.

I would like to pick up on two points that are at the centre of the debate between the EU and the other states. The process so far has involved several space-faring nations, first of all the United States, Russia, China and other space-faring nations. One point that was raised several times is the question of freedom of access to space, which is not recognised expressly by the existing legal instruments that currently speak of freedom of access to celestial bodies, not to space as such. It has been argued that, if you want to have access to celestial bodies, you should have access to outer space, but in any case there is one point that links this matter with missile proliferation, which is the fact that this freedom of access – I do not speak of rights – could be limited. It is not something that is unlimited. It could be limited, and the problem is to recognise where and when it could be limited. What does denial of access to space mean? This was the concept in the vision of Bush on outer space, and is not in the Obama vision of space policy.

For instance there are two states, North Korea and Iran, which have sanctions adopted by the Security Council obliging these two states not to have programmes concerning ballistic missiles and missile launching. Because of the closeness between the technology to launch spacecraft and the technology to launch missiles, these kinds of sanctions also limit the freedom of access to space of these two countries in a more general way. So there is concern that the international code presented by the EU for negotiation with other states could be interpreted as in tension with provisions of the UN Security Council resolutions or other international obligations that limit access to space in certain cases. This is a concern from the United States: the principle of freedom of access that is codified in this code of

the EU.

The other is the principle of no harmful interference with space objects, which has been developed in the past by several think-tanks in space matters, and the core of the new initiative is to bring states to refrain from any action intended to damage or destroy space objects. This is something that could help to stop the practice of kinetic energy anti-satellite testing and other means that can damage or destroy space objects.

In the draft of the EU there are three exceptions – and there is a huge discussion about them, namely self-defence, imperative reasons and the avoidance of space debris – that could justify this kind of action. There is no intent in the EU draft to deal with placement of weapons in outer space, but the EU, at least until now, seems not to be against the discussion of the draft presented by China and Russia to the Conference on Disarmament, namely the draft on the prohibition on the placement of weapons in space. There are three points I already mentioned in the kick-off meeting here that are very critical: the limitation between space and atmosphere, the definition of space arms, which is very, very general, and the fact that this draft does not prohibit anti-satellite tests and actions. This approach could be shared by western countries and other space-faring countries. The Secretary of State, Hillary Clinton, said that the US will support this initiative and renegotiate the text, and I hope that the EU will take seriously the possibility to open the code for a multilateral meeting, where countries that until now have not been involved in the process could express their views concerning this initiative of the EU.

I know that my time is finished, so thank you very much.

Prof. Heinz Gärtner

Thank you very much for this comprehensive overview, and we will have the opportunity to ask some more detailed questions later on. But without further ado I hand over to Götz Neuneck. He is Deputy Director of the Institute for Peace, Research and Security at the University of Hamburg.

Götz Neuneck

Thank you very much, and thank you to the organisers and creators of the conference for inviting me. I am a physicist, and I know there are many other friendly faces here in the audience that are very knowledgeable about this subject: space and missile proliferation. I feel honoured to speak in front of you.

Let me take three steps. Firstly, why is space important? This is quite well known for specialists, but maybe not for the public. Secondly, what are the threats, and thirdly what are the tools? We have to recognise that more and more countries and consortia are dealing with space issues. Sixty nations and consortia are operating satellites. Obviously some kind of governance is needed. The actual space law is a good foundation – it contains a lot of important principles, some of the most important of which have already been mentioned – but this is certainly not enough.

Space is also a subset of foreign policy, and this complicates things very much. We have the Magna Carta, the OST, which contains important principles such as peaceful usage, free access to space and international cooperation. The reality is a little bit different, especially if it comes to Article 4, which prohibits the deployment of WMD in space but not any conventional interference in space.

Let me remind you that arms control treaties also include important provisions about non-interference in national technical means, but these are treaties more or less between the US and Russia, and they come from the Cold War. It is a key challenge for the international community to introduce measures to keep this space environment free from any conflict, and there is a taboo about doing that. We have seen satellite testing in space, but I think currently there are no weapons in space, and we should try to build on that.

There are more or less two schemes of technology. One is space missile technologies, and they are the guarantee to have access to space. Without satellite launches, you simply cannot go there.

Unfortunately this is a dual use technology, which means that these gadgets can be used for military purposes and also for commercial and civilian applications. If you look back to the space age era, most of the American and Russian missiles were military missiles, which have been more or less converted to civilian missiles. So we have a problem here, and certainly it is not easy to find good solutions to restrict the flow of technologies.

We have currently 11 countries that can design, develop and launch space vehicles. In a sense that is not many, so in terms of arms control the number of states is quite limited. Quite an extensive industrial base and a complex support infrastructure is necessary to maintain all these things and to bring objects into space, and especially to manoeuvre them all the time. So it might be simple for Iran to use a medium-range ballistic missile, maybe of Russian or Chinese origin, to put 25 kilogrammes into space, but for further actions you need much more. We have some hierarchy of space-faring nations, which means we also have a big disparity here. Some states simply have access to space, others have not.

What are the tools? I think the tools are limited. There is arms export control, the Missile Technology Control Regime (MTCR). This regime worked but weakened some programmes, and for some states it makes programmes impossible. Then we have the arms control approach. The HCOC creates important norm and transparency-building exercises, but does not prevent or reach countries of concern. They are not included and are mainly countries that proliferate technologies and launch missiles for whatever reason. Cruise missiles are not included, which is also a main deficit for the HCOC.

Nevertheless, the HCOC is important. Pre-launch notifications and transparency measures are good tools, but the states also have to implement and detail them. The tools are there but the practical implementation is certainly lacking. This is not just true for smaller states that might not have much interest, but also for the US and Russia. They could do much more in that regard.

Regarding the space threat, we have to have in mind that technology today tracks 22,000 manmade objects bigger than 10 centimetres, which is the size of a softball. This is certainly a concern. It only takes one centimetre to pierce any satellite wall. A satellite is very vulnerable, and it is not easy to destroy such a thing, but it can be done, as several tests showed in the 1950s and 1960s. China tested this in 2007, and the US in 2008, which draws the whole debate on missile defence into this because in principle we have three categories of space weapons. Firstly, space-to-space weapons, and you have to bring weapons into space. You can bring in lasers, collision devices and micro-satellites, which can manoeuvre and destroy satellites, or they can damage them, whatever you would like to do. I think it is a very stupid idea to do that. It is expensive, it creates a lot of space debris as we have seen, and states simply should abstain from working on any technology to do that.

But we also have Earth-to-space weapons, and this is simply a ballistic missile with a collision device on top of the missile. The Chinese anti-satellite (ASAT) test was not much different in principle, from a technological point of view, from the American Aegis 2008 intercept of a defunct satellite. So if you have medium-range ballistic missile defence systems, you can also threaten and intercept satellites in low Earth orbit. This causes a lot of concerns and problems, and I think we have to find a solution for that.

Space situational awareness is important. Many countries can observe what is going on in space. If Israel launches satellites, they can ask the American space command system after some minutes what their satellites are doing. So we need some independent verification tools here, be it in Europe or in cooperation with other countries.

If I turn over to tools, because it is quite clear that satellites are very vulnerable, there are a lot of technologies in principle available to do damage to satellites, including laser weapons. Lasers can be used for tracking satellites, but if the power of the lasers is turned on they can do damage to satellites. So everything that has to deal with space is very ambivalent. It would be useful for future predictability, and to keep space free from any collisions and destructive acts, to have new tools of some kind.

There are three approaches here. One is the legally binding treaty proposed and submitted by China and Russia in 2008. Second is the EU code of conduct, and the third one is in a general way introducing transparency and confidence-building measures. There are some overlaps in these treaties, but there are also some contradictions. The space code, for example, does not create clearly defined arms control provisions but simply tries to avoid any mishaps and miscalculations. It supports actions that would prevent harm to satellites, which is a good thing, but it does not include clear provisions about how to limit space weapons.

I will add a little bit from a technical point of view about the term 'space weapon'. It is not only a gadget which manoeuvres like in James Bond or science fiction. An infrastructure is necessary to

manoeuvre so more or less a global system is needed to do that. Satellites are needed for communication and you need early warning and so on. It is not easy to do that when a space weapon is embedded in a very complicated infrastructure, and we also have to include that in our consideration. There is no arms race in space, and aliens doing some kind of arms race; all these things are prepared on Earth. They are in the laboratories, and could be used and converted from some kind of technical knowledge, so I think we should not be so naïve to think simply forbidding one kind of satellite solves the problem. The definition of a 'space weapon' is very important, and will be one of the keys of these multilateral negotiations.

It is quite clear that countries that are very concerned about ballistic missile defence, such as China and Russia, will point to that, so the EU code must find some answers. I would say the code is a very important step forward, especially if the US joins, and it is most important that the number one space power is really interested in some kind of multilateral treaty. The EU code is not a treaty; it is not legally binding. It is politically important and it gives a fundamental framework for future considerations. The Russian and Chinese treaty also has some loopholes when it comes to definitions regarding what to do if a country does not comply, for example sanctions. If you make a treaty, that should be included so that it allows testing. What is testing? That is not easy to answer.

In principle we have a lot of interesting proposals in the United Nations about transparency and confidence-building measures, such as information sharing, inspections, visits, military constraints, but I do not have time to go into any detail. Let me end, finally, by saying we have been asked to give some recommendations. I think negotiating the space code will certainly require time and patience, but it is key to integrate China, Russia, India and Brazil, to name only some important countries that are working on ballistic missile defence and have some ambitious space plans. I think the EU can support expert workshops to discuss concrete confidence-building measures in the space realm. We have to find a solution for including ballistic missile defence because it has an inherent capability to shoot down satellites, and it does not make any sense to turn a blind eye to that.

The EU should continue to study joint monitoring and surveillance facilities, extend space cooperation, and at the end I think we also have to find ways to unblock the Conference on Disarmament because this is an important forum. If this does not work after 50 years I think other steps have to be organised. I think the key is to keep space free from armed conflict and transforming or projecting the problems we have on Earth also to space. It would be too costly, it is too dangerous and it really does not help. So let me stop here, and turn the mic back to the chairman.

Prof. Heinz Gärtner

Thank you very much, especially for touching upon some very sensitive points. The Code of Conduct is an important step forward, but it is not for all so it does not include everybody. There should be ways for others to join it as well. Then of course there is the dual use problem, so what a weapon is and how to include ballistic missile defence. That was the main point I got, but of course there will be others as well. So without further ado, I give the floor to Pavel Podvig. He is the director of the Russian Nuclear Forces Project.

Pavel Podvig

Thank you very much. First of all I would like to thank the organisers for the opportunity to speak here, and I will apologise for not speaking about space, because when we discussed our presentations we agreed that I will try to cover the missile proliferation aspect of the problem. One particular aspect of that problem is missile defence, and Russia's reaction to the missile defence plans, to the extent that I will try to link it to the differences in the threat assessment and the views on missile proliferation that exist between Russia, the United States and Europe.

First of all, just a small note; I think it is very interesting that I will talk about missile defence in a room that is called 'Evasion Innovation', which describes very well the kind of interplay that is going on there between the offensive and defensive technologies.

So let me again underscore that Russia's reaction to missile defence is in part at least linked to the differences in threat assessment. We probably all would agree that the developments around missile defence in Russia have had a very deep impact on the security environment in Europe for quite some time now. So let me start by saying that, if we look at the missile defence in general, or the specific system that is being deployed in Europe as a response to the proliferation of ballistic missiles, I think we should understand that defence is unlikely to provide an effective way of dealing with missile threats. It is not really a matter of technology being ready or not, or the evasion innovation kind of cycle.

I think it is a more fundamental issue with defences, because missile defence could be useful in a fairly narrow set of missions. It could intercept missiles in some circumstances, it could provide protection for military forces in a military context, but when it comes to protecting the population against a threat of a missile strike, and especially if that missile strike has a chance of being a nuclear strike, then missile defence pretty much does not change the strategic calculation on the side of the attacker or the defence. If we go back to the history of offence/defence interactions that we know from the US and Soviet Union, we see exactly this dynamic: every time, people would go back and see that missile defence only makes sense in a fairly narrow military context.

If we look at the current European system in particular, we will see that that has been acknowledged. The United States defined the mission of the current defence as defence against regional missile threats to US forces. Then only after that it says, 'Well, by the way, this system may help or enable our European allies to defend themselves,' so the United States sort of leaves the hard part of the mission, protecting Europe, to some unspecified European segment of the defence.

Another important point about the current defence system, which will determine again the outlook of the problem in the coming years, is that the current phase of the phased adaptive approach is being deployed theoretically to protect Europe. But it has always been a US system, and a programme that had protection of the US territory as a goal. The fact that today it is focused on Europe is just an

accident of the political developments of the United States and certain technological constraints. I have no doubt that as the political situation in the United States changes, or especially if it changes dramatically as a result of elections, and as technology advances a bit, we will see the United States move away from Europe and concentrate on actually protecting its own territory. The mission of protecting the European continent will become a residual mission – good if it works, but if it does not that is not the United States' problem.

We can definitely see that this kind of a move away from the European defence towards more of a protection of US territory would certainly be a direction that Russia will not particularly like. That brings us to Russia's position, and we have a problem here in the sense that to say that Russia's position on missile defence is not quite consistent is probably an understatement. Sometimes it is very hard to really pin down what the position is. If we try to find the kind of rational and consistent core in the Russian approach to missile defence, I think the key element would be the disagreement about the nature of missile threat as opposed to the assessment that the United States, and to some extent Europe, makes.

Russia certainly makes far-reaching conclusions from this disagreement about the existence of the missile threats, but in fact if you look at the specific issue you would see that Russia does have a different idea of what a missile threat might be. For example, when Russian experts talk about the threat of intercontinental ballistic missiles (ICBMs) they do not just say that Iran, for example, is too far off in its capability of building an ICBM. The approach is more that the Russians tend to believe that, unless it is a really robust and very reliable missile programme of the kind that the Soviet Union built in the past, it is not really a serious threat.

The United States certainly tends to err more on the side of caution, and believes that even the rudimentary ICBM would be a significant threat. We can discuss which approach is closer to reality, but that is a difference that we can acknowledge. In one way I would not say that there is a way of bridging that difference, but certainly in the past we have seen that, when Russian and American experts get together to discuss these kinds of disagreements or their differences, they actually make some progress. There was a very good leaked cable from one of those meetings between US and Russian experts that showed that, when you bring experts into a room, they tend to concentrate on the issues that matter.

If we look at the threat assessment, Russia does not really believe that an [Iranian] ICBM is anywhere close, but when you talk about the shorter range missiles and maybe the intermediate-range missiles, I think here the assessment is closer; Russia is willing to admit there might be a threat from shorter range missiles. The problem there is that Russia does not see this threat as necessarily a serious national security problem. There are reasons, of course. I do not think there are many plausible scenarios in which Moscow would be threatened by Iranian missiles. Even in the unlikely event of Russia being on the side of the United States or NATO in some kind of a confrontation, Moscow will certainly not be very high on the target list, and there is an understanding of that in Russia. Quite a

few people actually tried to make the argument in the internal Russian debate. Alexei Arbatov, for example, has been making this argument very consistently – that Russia needs to be concerned about these short-range missiles – but it has never really penetrated the defence or the national security discussion. So inside Russia there is no vision of missile defence that would somehow protect Russia, because there is no threat that is believed to be there.

On the contrary, the notion that the United States missile defence is directed against Russia enjoys very wide support from pretty much all levels of the political leadership or the military, and in society as well, I think. From a technical point there is no way this system could threaten the Russian forces. In reality it is a political argument, and it is a political position in which too many people, politicians and institutions have invested too much political capital, including the current prime minister. You may have heard that this is an issue that he feels very deeply about. As we discussed earlier today at lunch, many in Russia see this missile defence issue as a problem to keep around, not a problem that needs a solution, which is very unfortunate.

I know that for many people in Europe there is a sense that something should be done about it, and there is great support in Europe for resolving the issue of missile defence. Unfortunately there is a structural problem there, which is that it is an American system, it is an American programme, and the Europeans do not really have a great influence over the course of action there.

If there is a solution there, I think it is greater cooperation between Russia and the United States. We should understand that it is not necessarily cooperation to build a missile defence that could protect someone, but rather it is the cooperation between the two countries that would help them understand the limits of missile defence. That could help them build internal constituencies that would be interested in that cooperation and in working together on issues related to missile proliferation.

To the extent that Europe could help, again there is not much that Europeans can do because Russia does see that as a bilateral issue primarily. But there are ways to engage Russia, for example – and I am glad that Götz mentioned this – things like cooperation on space situational awareness. Russia does have a fair amount of assets that allow you to monitor the space environment, and that is the area where Europe actually could try to develop cooperation with Russia and with the United States. Russia has something there to bring to the table. By engaging Russia in this kind of cooperation you could help build these kinds of internal constituencies for cooperation. It will be a long process, but I think it is definitely worth trying.

Prof. Heinz Gärtner

Thank you for addressing the Russian concerns on the missile defence programme, which sounded like an introduction to the inter-country offensive/defensive problem, which of course predates the nuclear era as well. So I will now open up for questions. I will take three or four at a time because there are many hands up already. Then I will go back to the panel. Before I do that, I ask the

panellists whether they have a quick reaction to each other, or will they wait for the questions from the audience, if that is alright for you?

Questions and Answers

Theresa Hitchens, Director, United Nations Institute for Disarmament Research (UNIDIR)

I wanted to make a quick point and then ask a question of Dr Marchisio. The point is I do not want it to be forgotten that the issue of space and security in space is related to nuclear security. In the Cold War you may remember that the United States and the Soviet Union experimented with ASAT missile technologies, and they did not ever deploy them permanently because they were concerned about the potential for the effect on nuclear stability. Both countries used their space assets to monitor the other's nuclear facilities, including early warning satellites, but also spy satellites, which monitor facilities on the ground.

There was a sort of mutual understanding, even after failed negotiations on banning ASATs, that if ASAT weapons were deployed and there was an accident in space and the other side's early warning satellites went belly up, that could lead to a nuclear crisis. That dynamic has not changed today. In fact there are more nuclear powers who are more suspicious, who are more reliant on space than the United States and the Soviet Union were, so I think it is really important to remember that there is a connection there, and that that is a serious connection. This is not just about whether or not you can get CNN tomorrow because your satellite has blown up. There is actually a serious issue there with crisis escalation.

I wanted to make one other quick point. The panel did not mention this, but the United Nations will be starting a group of governmental experts on developing transparency and confidence-building measures in space in July of this year. It will be a year-long process, and the idea is to make some recommendations to the secretary-general about how to proceed down those lines. This is based on a resolution that was passed last year by the First Committee at the initiative of Russia, so that is going to be an important process and will run in parallel to the discussions that the EU has opened on an international code of conduct. Those two things are slightly different. You can see a code as a normative setting thing. It is about setting norms, whereas transparency and confidence-building measures tend to be a little more technical; it is about how you actually exchange data. They are related, but they are not the same process.

Finally, my question. Mr Marchisio, you mentioned that there were three exceptions in the draft to the prohibition or the pledge not to damage or destroy space objects, and I only caught two. I caught self-defence and avoidance of space debris. There was one in the middle, and I just wondered if you could repeat that for me. Thank you.

Wolfgang Rudischhauser, Chairman, External Action Service, Non-Proliferation Committee, EU

I just wanted to add two things on the Code of Conduct and the presentation by Mr Marchisio, and one comment to Mr Neuneck.

First of all, Mr Marchisio really stressed the incremental approach, which is in the Code of Conduct. We can certainly, and this is towards Mr Neuneck, try to have a perfect code; we can try to include everything, but then it will have the fate of treaty negotiations in the international system, which can take years. In that respect I think it is very important to stress the incremental approach, to stress this as a start, and in this connection it is very, very important that the US and Hillary Clinton personally are on board in starting this process.

There was a bit of blurry reaction from the US, perhaps accidentally, but the way afterwards we got Hillary Clinton to speak in favour of the Americans engaging in the code showed that there is a real interest in the US administration to start working with us. I think if we can get Russia on board – and we are working very hard on China and other nations, even on South Africa, which is a key player in the international system – and if we get our process started with expert level discussions, which we will have in a few weeks, and perhaps a diplomatic conference later this year, we have done a good deal towards doing this incremental step.

Bruno Gruselle, Senior Research Fellow, FRS

I have a reaction to Pavel's presentation, which I will try to put as a question. Actually I have got two. I disagree on the fact that Russia has no vision of missile defence as a way to protect its security interests. For example there is a lot of effort put into deploying S400 and developing S500, and secondly the fact that under Medvedev's direction all airspace defence was put under one command last year. So I think they have a vision, at least in the military, that missile defence is important for Russia's security.

That gives me another point. I do not think we disagree that much on the threat assessment. We did agree on ICBM, but we kind of disagree in Europe even on what the timelines are of Iran developing an ICBM. But I do not think we disagree on the short-term and medium-term development of missile threats towards Europe, and I do not think the Russians disagree.

There is a second point on which I disagree with you, Pavel, so it is kind of a question I would like you to react to. I am not sure the military is so insensitive to what is happening in Europe in terms of missile defence development. For a long time I took it as granted that the Russian military does not care about missile defence in Europe, but the rationale they are giving rings a bell. The rationale is our second-strike capability is limited. So if we have first-strike capability, if the US strikes us with all their potential assets to take down our fixed nuclear-strike capability, our second-strike capability is so limited that even a limited missile defence could actually have an impact on our deterrence capability. I see there the kind of paranoid planning that the military could do in any country with deterrence capability. So I think the military are pushing, maybe not as much as being seen as pushing, but they are pushing.

I want you to comment on that, Pavel, because you say it is much more a political kind of tension rather than a military one. I do not agree with that. Thank you.

Dr Teng Jianqun, Director, Center for Arms Control and International Security Studies, China Institute of International Studies

Just two brief comments, one is related to outer space and the other to missiles. To be frank, I do not think that we can prevent our weaponisation of outer space in the coming years. Our history shows that when we have productivity in the sky and in the seas, we have sea warfare and sky warfare. I think actually we are at a very crucial moment right now. It seems to me like the stage at which the automobile industry began to produce cars; at that early stage only the rich man could buy a car, and drive on the highway without traffic control or red lights or blue lights, or regulation. So I think what we should do now desperately is to regulate our actions in outer space. I think any code of conduct or outer space law is absolutely necessary for us to have at this moment so we can avoid the dilemma of the nuclear proliferation that we are facing.

The second point is a missile defence programme by the United States and by NATO. I am sure you know that the Chinese government up to now has not yet given a very strong response to this programme as the Russians did. But if you read carefully our government publications or our high-ranking officials' speeches, for example our foreign minister's speech at the Conference on Disarmament years ago, I think China has increased its tone of concern over this project. In the eyes of some Chinese scholars, they all argue that this missile defence programme actually will deteriorate the stability among the big powers, and will deteriorate the peace and the stable relations among the big powers. As history shows, without such peace and stability among all these big powers, we are approaching a very dangerous moment. Thank you.

Nobuyasu Abe, Director, Centre for the Promotion of Disarmament Non-Proliferation (CPDNP), Tokyo

I have a question to Director Podvig. I think you said something like missile defence really cannot work. And if that is so, why does Russia still insist that they are against US missile defence deployment?

Also, this relates to the question that the gentleman raised; if he agrees with that argument I think you have already answered my question. It seems the Russians are insisting that the US missile defence is their security concern. The Americans have been saying that their deployment is to be limited in number, and with that number the Russians can easily saturate and overpower American defences. Why are the Russians insisting that point?

Jacek Bylica, Head, WMD Non-Proliferation Centre, NATO

I am the head of non-proliferation at NATO, and in this capacity I also chair the NATO-Russia Council working group on arms control, disarmament and non-proliferation, which has in its

mandate a dialogue between NATO and Russia on proliferation issues. Before the Lisbon Summit, and I am talking about the NATO-Russia Council (NRC) Lisbon Summit, we developed two joint documents between NATO and Russia. One was on nuclear proliferation and the other was actually on ballistic missile proliferation.

The documents, on the decision of higher authorities, remained NRC restricted. They made it to this joint NATO-Russia review of twenty-first century security challenges. But they are agreed documents. Obviously, with experienced diplomats in the room, you understand that you can agree in different ways. There can also be an agreement to disagree. But substantive dialogue has been happening, and there are channels for this dialogue between NATO and Russia, which are sometimes utilised or sometimes under-utilised, which brings me to the second point, and a question to Mr Podvig.

I very much support what you said, which I take as the importance of perceptions. It is an obvious thing that statesmen do not really react to international reality. They react to their own perception of international reality. In the same way that the US has a certain perception of Iran, Russia has a certain perception of NATO and the missile defence project. My question is, and this is really a request for advice and ideas, what can be done to bring the perception closer to reality in terms of NATO-Russia relations? Thank you.

Götz Neuneck

So actually there was no question to me; I am shocked. But nevertheless, let me pick up some subjects that are really combined. I think Theresa has made a very, very important point. Let us be honest: space is also now used for infrastructure for different purposes, and one is early warning. For deterrence and stability of deterrence, you need good early warning. This is a paradox, but to put weapons or effects that can damage satellites into space is an incredible challenge, and the Cold War exactly showed that both superpowers refrained from doing that.

The question now is: would other states come into that kind of business here? I think it would be a very stupid idea. The argument that you can see in American and Russian literature – that armed conflict started on land and then moved to sea, then to air and then to space – is a very stupid thing. I think we should be mature people and have some kind of civilised international understanding in the community to solve that. I think the proposals done by scientists and lawyers here could be really picked up to find at least some agreement. It is very important to protect critical infrastructure.

These are not only issues and subjects connected to the military, but also to the civilian communities. There will be no more communication if satellites are threatened all the time, and so on, so I think we should be very clear on that.

My second comment is about this discussion about missile defence and Russia. I think Jacek Bylica is right: it is the perception. But I am wondering whether the biggest military alliance on Earth, NATO,

is capable of building some kind of confidence about missile defence. The system is actually an American system. It is a very rudimentary American system, so if you look to the technology, it is really not a threat I would, as a Russian, be threatened by. But why are the Russians so crazy? These are imperial reactions, and this is a deep concern, which dates back to the Cold War. This military technology superiority makes a difference, and you should not only look to the quite limited missile defence capabilities today, but also to space – a prompt global strike, to nuclear weapons, and to high accuracy – equipping intercontinental ballistic missiles (ICBM) or trans-atmospheric vehicles with pinpoint accuracy.

This is the problem for the Russians. The idea to have some kind of cooperation business with Russia is quite a good idea. You certainly cannot solve the complex question of strategic stability between the US and Russia, and we all know that if there is a new/old American president, and there will be a next round of negotiations on reducing the nuclear stockpiles further on, the biggest obstacle is missile defence, which is the old question of offence and defence relationships. At the moment the Russians are not prepared and not interested in any dialogue on that, so I think it is the West that should put forward ideas and proposals for how to do that, and I would also include things like tactical nuclear weapons.

NATO enjoys a big conventional superiority here, and I think we are in a quite good situation to deal with the Russians. I think actually that will be very hard; there are elections, there are new presidents coming in, so we will see. But I think NATO and the community is not prepared to lead that dialogue. So I agree, but I also ask NATO what they have in mind, because they could fight for restraint. They could go forward to even include nuclear disarmament and also very much restraints on ballistic missile defence. This is exactly what the Russians want to do. They always claim they need legally binding commitments and reassurances. I think it is hard for the American government to do that. It is impossible for other democratic states to do it, but any ideas how to do it must be found. There is no answer, and as long as there is no answer, Russia will not come to the negotiation table again.

Sergio Marchisio

Thank you. Just to pick up one specific question that was addressed to me, there is a question about the third exception, the language of the code. It now refers to the imperative safety considerations. This is a very general formula, but we had to deal with some problems that arose during the consultations with many countries about that. There is a more general exception than the avoidance of space debris. I do not know if they will survive at the end of this process.

I cannot but agree with the other comment on the incremental approach. I am positive that this is the main added value of the code: to phase the process and begin to consider the rules of the road, as our Chinese colleague mentioned. We are in a field where some rules for operating spacecraft are needed, and we discovered that in the national practices there are best practices and guidelines. For instance, for re-entry of space objects, why should we not discuss something at international level to

give a general framework for informing the potentially affected states about the risks of re-entry of some spacecraft into the atmosphere?

Some days ago we had the problem with Phobos-Grunt, the Russian spacecraft. Some months before, another satellite from the US, an educational satellite, was falling down on the Earth. Collisions in space between space objects until now have been managed in a very diplomatic way. We did not have any legal claim for that, even though there were some collisions, but is it possible to go the same way in the future? So we need something to try to regulate this, even in a pledging fashion rather than a mandatory way.

Götz Neuneck

I am still wondering whether this incremental approach is possible without resorting to missile defence beforehand. That is still a contradiction.

Sergio Marchisio

The code does not prohibit missile defence; I will make that clear.

Götz Neuneck

But he wants to include everybody in Russia as well with this incremental approach.

Sergio Marchisio

Because if you accept the self-defence principle and the limit of the self-defence –

Prof. Heinz Gärtner

Okay, missile defence.

Pavel Podvig

Yes, thank you. These are very good questions. First of all is the issue of whether Russia is actually thinking about its own missile defence. Most of the developments that you mentioned – the air and space defence command that was integrated, the systems S400 and S500 and everything – are in the context of actually countering the US and NATO. That is how it is understood, and this is how the system was built.

Again, you are right in that I do not think that there is disagreement on the short- and medium-term threat assessment, in the sense that many experts in Russia do understand that there is some missile capability in Iran and potentially in other countries. But when you think about the kind of conflicts where these missiles would actually threaten Russia proper, that is much harder to envisage. Again, you could think about scenarios of this kind for the United States and for NATO, but for Russia that is much more difficult.

Whether Russia's argument has some rational part in it – of second-strike capability, and the

possibility that the United States could strike first and then use missile defence to actually sort of finish the job, if you will, and sort of intercept a few – is a difficult argument, but I think the fact is that if you look at the history of missile defence and this offence/defence relationship, this is actually what happened every time.

People will come up with this idea of defence, and then they would say it is great and there is a danger of the first strike and second strike, and they would give exactly these calculations. But then when people look at the actual capabilities of these defences, they quickly realise that there is not very much that they could do to actually do the kind of job that you are thinking of. I am not even saying that actually Russia has a full complement of penetration aids and decoys and all these things. I do not think that there is any chance that missile defence could actually do anything about them. But you could make this argument and, as I said, this is a political argument. Quite a few people in Russia have been making this argument, partly because they had an interest that aligned very well with this line of argument, whether it is the political leadership, the industry or the military.

Again, to you, which is almost the same question, why is Russia concerned? Well, as I said, there are many reasons, and many people in institutions in Russia are benefitting from making this particular argument. If you look at, for example, the strategic militarisation programme, every single programme that is out there, starting from the new sea-launched ballistic missile to this project of building a new heavy land-based ballistic missile down to very, very small things, everybody says, 'Oh, and by the way, this is a system that will save us from any missile defence.'

It is almost silly to say that this is the argument that is there, but that is the reality – that this is a very powerful thing. As I said, if you go to the political leadership level, then again you would see that this was the issue that is in many ways convenient if you want to have a confrontational issue with the United States. If you wanted to, you could have it. If you want to solve it, you will. I am positive that, at some point, as it happened in the past at some point, Russia will probably just say, 'Okay, it is not a problem,' and it would be right.

Lukasz Kulesa, Project Coordinator, Polish Institute of International Affairs

I have a very quick question on a very difficult subject. The threat assessment about the Iranian space and missile programme is connected with the issue. To what extent do Iranians still need outside expertise, materials and technologies? I would be very interested in the views of the panel on this.

Rebecca Johnson, Acronym Institute

The conflicting attitude of Russia and the US about the Code of Conduct raises a strategic dilemma for the EU. Do you either try to set the benchmark for what you think will really make a difference and then use political means to try to get countries to come on board, or do you set the bar rather low, as the lowest common denominator, to try to get countries on board in the beginning, with the danger that, as we have seen quite often in treaties and things, what is not explicitly prohibited becomes

treated as if it is permitted?

Hans Blix, Director General Emeritus, IAEA

Mr Chairman, unlike you and the others I am not an expert on missile protection, but I will start by saying that, when it comes to conferences, you are confused before you come, then you get very enlightened when you are here, and then more confused afterwards. I am still at that point. We hear that it is a matter of perceptions rather than reality, but if you look at it there are different perceptions of the reality and some are right. I experienced that in the Iraq War. There were some people who had the right perception – I see one across the aisle – and others who did not. So we have to live with the fact that there are different perceptions.

The third point I would make is that my impression is that missiles are not terribly useful; it might not work for the Russians or the Americans, but the conclusion is that it is an inexhaustible milk cow for the constituencies. We heard that about Russia; we heard it from Mr Podvig just now. That is very interesting in itself. What Mr Podvig said further I thought was very pertinent and important in the light of the current debate in Europe.

The atmosphere is poisoned about the missile defence in Europe, and we know that is at least part of the reason why it may be hard to go further on from the start. Yet I hear from Mr Podvig that these installations in Europe are rudimentary American installations, they are made for something different and they could protect American installations in Europe, but the US installations are going out of Europe, there are less in Europe, so they are of less and less importance, and they are not really very dangerous to the Russian side either. So here we are fighting about something that seems to be poisoning the atmosphere totally and inhibiting us from going further, and yet being totally useless. Now that is rather paradoxical, and if it is right, we all have a duty to try to clarify it.

Stefan Kordasch, Deputy Head, Nuclear Arms Control and Non-Proliferation Division, Federal Foreign Office, Germany

I have the impression that we are missing an important aspect here, because we are talking on the one hand about an arms control approach to space, but on the problem of missile proliferation we are only talking about a military, technical approach, missile defence, and not really engaging in possible ways to work on an arms control approach. The HCOC has been mentioned here briefly at the outset. It is something that the EU has been very active in preaching to the rest of the world, with limited success unfortunately. So I would actually welcome a bit more input on possible ways and means to address the countries of concern with an arms control approach to ballistic missile proliferation.

Pavel Podvig

On Iran and the outside assistance, I am not sure I could give you the latest here, but I think, again, as I understand it, this is the issue that you could actually sort of adjust to make your threat assessment closer or further away. You could say Iran cannot do this and that, but if it has outside assistance

then it could do certain things faster. So I am not sure if there is strong evidence there that there is a great deal of assistance.

On the perceptions and reality and why we were talking about this, the current system will be going away. That is the unfortunate reality of why we are here, and unfortunately, as I said, as the United States will move towards actually protecting its own territory, Russia would probably make it more of an issue in this kind of dialogue. It will say, 'Oh, now you are really trying to build a system that will be protecting you from the ICBMs, and this is why this system is even more of a threat to Russia,' and all these kind of arguments.

As I said, it is a political issue, so at some point it is entirely possible for Russia to actually come to look at the missile defences and look at the capabilities and actually say, 'No, there is no way this system can make any kind of difference in our strategic environment.'

Sergio Marchisio

I have just a few words on the question posed by Rebecca. It is evident that the code is a non-binding political instrument and perhaps has a lower content than we could expect. But I think that we should also assess the reactions by the states that have been consulted or approached. They entered into details; they discovered points that they cannot accept, for instance – that are red lines for them. There are some critical points that should be negotiated, and this exercise would be very, very useful for clearing some outstanding issues within the space field.

On the question of the arms control approach, I cannot enter into details here of course, but the code does not have this kind of approach, but you can figure that out. Also the fact that the HCOC is mentioned in the Code of Conduct raised some problems. There are states that wanted to keep out from the cold with reference to the HCOC because they fear that this could be a way for strengthening the system of the code. So I think for the time being with the EU I do not see any political policy about an arms control approach to missile proliferation unless there is strengthening of the HCOC code.

Götz Neuneck

Okay, three short final sentences, first on missile proliferation, then on missile defence and then on space arms control. I think missile proliferation is a concern, but the key concern is missiles and WMD. So I think a key topic on the agenda, as always, is WMD, especially nuclear issues; I think we should be very clear. On missile proliferation, you can do something by constructing regimes and by dampening programmes by arms export control. There will always be leakages. If the damage is done and the missile technology is already in specific areas, the only possibility, I think, except from war, which is also always discussed here, is really a regional arms control. I always mention that in MTCR and HCOC meetings, and it is never picked up by anybody.

Finally, missile defence is very, very unreliable. It provokes more than it solves, it is very costly and I think it still is a main cause of problems for arms control. Even in Europe we have to make some advertisement here; we made a study prospect for arms control in Europe and tried to combine technical nuclear weapons, prompt global strike and ballistic missile defence, so I am happy to give anybody who is interested this study.

With space arms control, I think it is important to have at least some framework to negotiate and to discuss. Arms control always works if you already have inventories, but there are no inventories here. That is the problem. So these things are in the labs – they are secret and black programmes. I could speak about some American problems that are ambivalent, but we do not have the time to do that.

However, to speak and to build trust between parties, especially the main space-faring parties, I think, would be a tremendous opportunity here in going forward, especially if it is claimed through self-interest, which means to protect critical infrastructures in space, including in crisis and in a war-like situation. To prevent that is the main challenge, and I think the ideas are there. Now it is for the diplomats to implement that. Thank you very much.

Prof. Heinz Gärtner

Okay, as the chair I was pretty unsuccessful here; we had two different debates. We still had missile defence on the one hand, and space at the other, but we did have excellent speakers, and hence at least it helped us to be confused on a very much higher level. I apologise that not all of you who wanted to have the floor could speak, but I want to ask you to give the panellists a big round of applause. Thank you.