

# Planetary Conversation: A Multidisciplinary Discussion about Ethnography and the Planetary

By: Anna Szolucha, Brad Tabas, Kseniia Khmelevska, Virginia Sanz Sanchez, Marek Pawlak, Iva Ramuš Cvetkovič, Sundar Sarukkai, Bruce Kapferer, Alita Regi, Giuliana Rotola, Rob Krawczyk, Zara Mirmalek, Karlijn Korpershoek, Peter Timko, Chakad Ojani

In May 2022, a multidisciplinary, international and intergenerational group of scholars met for a “Planetary conversation”. The event was organised by the members of the ARIES (Anthropological Research into the Imaginaries and Exploration of Space) project at the Institute of Ethnology and Cultural Anthropology, Jagiellonian University in Kraków, Poland.<sup>1</sup> The aim of the workshop was to discuss the potentials that a planetary perspective can open up as well as the challenges that it may pose for anthropology and global politics more broadly.

During the course of the conversation, it became clear that despite the participants’ varying understandings of the planetary perspective and its usefulness, most seemed to agree that there was a need to reimagine the global in a way that would include all forms of difference while also opening up new understandings about human beings in general. While we disagreed about whether the planetary was the best metaphor to use, we did note the potential that the concept of the planet offered for this intervention. In the exchanges below, we instinctively understood the planetary as a perspective that included (rather than excluded) a totality of social and cultural differences and offered a potentially unifying perspective at the same time. This understanding bears some similarity to the historical discourse that employed the planetary perspective to foster the environmental

---

<sup>1</sup> <https://www.aries-project.com> (access: 01.06.2022).

agenda in the 1960s and 1970s. However, it also differs from more contemporary discourses that use the planet as an emblem of the physical limits of our world. The intervention that the planetary perspective can potentially make lies precisely in its ability to encompass radical as well as apparent differences and put them to work for a more general understanding that can overcome the ideological divisiveness of much of the contemporary social and political life. For some of our participants, this was a *sine qua non* for making space exploration happen. As one participant put it, when people quarrel and fight, they undermine their future efforts to reach nearby stars as the universe is expanding and we are literally drifting away from other objects in space. For those of the participants who are not invested in space research, the planetary seemed like a possible way to resist the harmful forces of narrow identitarian politics.

Even though we came to this debate with a very contemporary baggage of what we saw as the main social and political issues at this time, what transpired during the conversation was that the planetary perspective becomes much more interesting and useful if we detemporalize the concept so that it is not just a time-limited discourse. Here is where an intervention into the current political dynamics and anthropological practice may uncannily coincide. Planetary – in the understanding that is proposed here as a perspective that includes difference, yet aims at a more general perspective, as the whole and the parts, as the particular and universal – strikes at the tension that is fundamental to the discipline of anthropology. Today this tension of how to assert the unity of human beings while also recognising their critical differences is no longer just a disciplinary problematic but a wide socio-political issue. In this context, anthropology may use the concept of the planetary to fulfil its promise, as one participant put it; it can showcase the ways in which difference and unity are dialectically interrelated and complementary. While doing that, it cannot succumb to ethnocentric assumptions and dominant relations of power. Instead, we may engage with the planetary as an opportunity to challenge established meanings and open them up to new understandings – also those that treat our planet as part of a bigger cosmic system. Thinking about the planet may help us escape our everyday assumptions and open us up to understanding one another as humans. Since a planetary view can be seen as a universalising moment, it can also lie at the heart of the constant revival and transformation of societies.

As the readers will see, our unguarded and informal conversation clearly revealed the desire for a hopeful future that brings people together rather than driving them apart. However, the discussion about the planetary also showed the disappointment with the historical discourses that pronounced greater connectedness, global consciousness and a new all-encompassing scientific and technological view of our planet. As we are talking about the planetary, we may also prepare ourselves for the next cycles of trial and disappointment; this back and forth

of particularism and universalism is the stuff of anthropology and may be a good indication of how these dynamics work in the real world as well.

## Participants

Anna Szolucha is the principal investigator of the ARIES project at the Institute of Ethnology and Cultural Anthropology, Jagiellonian University. Her research interests include space anthropology, resource extraction, energy, social movements and democracy.

Brad Tabas is a Professor in the department of Social and Human Sciences at the ENSTA Bretagne. His publications deal with space philosophy and astroculture, eco-criticism, science fiction and fantasy literature, engineering education, and ordinary language philosophy.

Kseniia Khmelevska studies Environmental Protection and Management at the Jagiellonian University. She is interested in astrobiology and protection of Earth.

Virginia Sanz Sanchez is an entrepreneur, Visionaire and multi-disciplinary professional. Her research interests include space exploration, overcoming the limits to growth, and the exploration of cybernetics and technological innovations that pursue the merging of humans with AI.

Marek Pawlak is Assistant Professor at the Institute of Ethnology and Cultural Anthropology, Jagiellonian University. In his research, he focuses on crisis, migration, futures and emotions.

Iva Ramuš Cvetkovič is a Junior Researcher and Assistant at the Institute of Criminology at the Faculty of Law, Ljubljana and a PhD student at the Faculty of Law, University of Ljubljana.

Sundar Sarukkai works primarily in the realm of philosophy of natural and social sciences and science and technology studies. He is a founder of the Barefoot Philosophers initiative.

Bruce Kapferer is Professor Emeritus of Anthropology at the University of Bergen and Honorary Professor at University College London. His research is concerned with the comparative ethnography of diverse socio-cultural forms in Africa, Asia and Europe.

Alita Regi is a graduate student at Florida Tech pursuing her degree in space sciences and is a future astronaut in training. Her research interests include human space flight, interplanetary habitat design, and spacesuit design and development.

Giuliana Rotola is a space law and policy researcher and a PhD student at Sant'Anna School of Advanced Studies Pisa, Italy.

Rob Krawczyk holds BA in Geography from University of Oxford and an MA in Research Architecture from Goldsmiths, University of London. His interests focus on the imaginaries of outer space in China.

Zara Mirmalek is a person in the world, working as a social scientist and a work ethnographer among communities producing scientific knowledge.

Karlijn Korpershoek is a PhD student within the ARIES project at the Institute of Ethnology and Cultural Anthropology, Jagiellonian University. Her research centres on the impact and foundations of large space infrastructures on local communities in neo- and postcolonial contexts.

Peter Timko is a PhD student within the ARIES project at the Institute of Ethnology and Cultural Anthropology, Jagiellonian University. His research interests focus on NewSpace economies.

Chakad Ojani is a postdoctoral researcher at Uppsala University and he is also associated with the ARIES project at the Institute of Ethnology and Cultural Anthropology, Jagiellonian University. His research interests include infrastructures, environments, and outer space.

\*

**Anna Szolucha:** Today we're meeting to answer such questions as: what should people's relation to the world and outer space be? Are changes needed in our philosophical or political understandings that we work with, or how to understand and incorporate difference?

I think that exploring the notion of the planetary may be a good starting point for thinking about some of these questions, because it seems to me that the planetary sort of re-emerged as a theoretical and social category precisely at the moment of this increasing uncertainty, disorientation, connectedness and diversity, all of which strongly define the moment in which we are right now. I think that talking about the planet and the planetary at this moment is indicating that we are looking for a change in our political and theoretical understandings and categories, partly to be able to describe what's going on, and partly perhaps also to try and find potential answers to the question of: what should we do?

Many of you are also interested in the social aspect of space exploration. For those of us who think about planets and other space objects and their relation to people and societies, thinking about the planetary has of course additional meaning because the planetary shows how space exploration is inextricably linked with broader social and political processes, and with the development of theoretical categories that are applicable beyond the immediate area of the social studies of outer space. So I think there's a lot in there for everyone.

And I would love to hear what planet and the planetary means to each and every one of you. But before we get to that, I'll just ask one question to start off the conversation and please take it anywhere you want: from your own research and from your own experience, where do you think our societies are heading when it comes to their relation to the world and their relations to one another?

**Kseniia Khmelevska:** We have a gap between the development of science and development of society as it is. So we may strive to begin space exploration and development and there are many, many good things in [space] colonization. But in fact, it feels like right now we are somewhere in between self-destruction, climate change and somehow partly with the exploration of space, moving to some station on Mars, who knows?

**Virginia Sanz Sanchez:** From my point of view, we are in a very important and crucial moment in the history of mankind because we have a chance to turn around this chaos that we all are seeing nowadays in the world. With the escalation of tensions and the wars, and the pandemic, the world is turning angrier, but we can turn it into something positive and we are in a critical moment as well because there is a new paradigm emerging. This new paradigm shift concerns also what it means to be human, with the fourth industrial revolution and because there is an advancement in robotic and artificial intelligence that will change the concept of the future at work. And we have the pressure from climate change. So, if I explore the situation right now, I think that space exploration could be like a common goal for humanity to take a different path into a meaningful economy from where we are heading right now. At the end of the day, we are all responsible for what will happen, due to action or inaction.

**Marek Pawlak:** This is a very profound question, I think, that you pose and it's very interesting because in a way, it casts light on social sciences and also on the world that we live in. I think that as humanity, we've somehow lost these kinds of hopeful futures that we used to have. And it happened around 1980s and 1990s. Today, we all rather discuss crisis futures. I'm obviously not into predicting the future. But, because in my work I'm interested in crises, and the ways in which imagined and anticipated futures impact the present and everyday life, I often stumble upon the narrative that we are all heading towards a dark future and that there's nothing we can do about it. And we can also see it in social sciences at large, where for the last 20 or 30 years we follow the narrative of dark anthropology and focus on dark futures stemming from exploitations, inequalities, hierarchies, and global power relations. But then at the same time, there are also more and more studies on hope, and perhaps we should engage more with hopes and hopeful futures in otherwise bleak times? I, personally, am rather a pessimist, but I also think that focusing on hopes has the potential to show that better futures are possible. Still, the question is how to do it in anthropology? And the problem with anthropology is that we continue to use the old language of, for example, reproduction, patterns, and the past, instead of parsing the new, the creative, the transgressive, and the future-oriented.

**Iva Ramuš Cvetkovič:** There are certain directions, already within the existing space legislation now, which should be indicators of how space activities will develop. But as it looks now, it does not completely develop in this way, the nature of space activities is not the most sustainable and maybe it can also be described as a bit elitist since it is not very inclusive of all parts of society. But in space legislation, there are several aspects which are claiming that it should be done not only for the benefit of all mankind, but also that it should be communicated in the public sphere to the greatest extent possible. I think now we should also work on what is the greatest extent possible because there are certain terms which could be very useful for the society in general if they could be interpreted more broadly.

**Sundar Sarukkai:** The first point is a concept like a planet, who does it really belong to? And I ask this question because the science community has had a dominant influence in defining the concept of a planet. And here we are using the word planet as a term on whose definition rests on the way a particular community understands it. And we have no way of making changes to that concept; think of the interesting debate which happened among astrophysicists when they were debating whether Pluto is a planet or not (Messeri 2010). What really struck me about this definition of a planet was that it showed the struggle to own a concept; planet is a common term across all communities but in this definition, the many diverse ways of understanding the planet (particularly from the non-west) were ignored or had no chance to be accommodated. Now when a new discourse is being formed around this word, it reminds me of another word: global. It seems as if much of what we mean by the planet is a new morphism of the global. Global as a cultural or economic or geopolitical term is now replaced by a physicality of something called the planet. But I don't think we really have a planetary consciousness. Very few people, even when talking about environmental consciousness, they talk about the Earth, but definitely not as a planet because remember that Earth by itself is not a planet, it does not need to be a planet. The concept of the Earth is not the concept of a planet but has various meanings such as sustaining (as in Mother Earth); something which creates life etc. These related notions including those of space and world, are represented in different cultures in many different ways. And when I look at the planetary discourse, which is perhaps attempting to replace the discourse of the global, I still find that the sun around which the other planets revolve remains the Eurocentric discourse! And my final point is that today's politics speaks deeply to this problem, because across the world we are moving away from ideas of the global into the local. We can see this in the revival of various kinds of communal, caste, race and gender identities. So, it seems that as a "global" phenomenon we are actually moving towards the local, not towards a planetary at all. But this might also mean that we can conceptualise the planet as local too. What are the implications of such a move? So, I see this planetary project as a political project of how to reimagine the global in the time of the movement towards the local, to notions of "my" community, "my" people etc.

**Anna Szolucha:** I think you've tapped into something that re-emerged in our team discussions over and over again – this question of whether we should be talking about the planetary at all? I think this question of whether the planetary is a rupture or is it a repetition is a very, very important one. Is it something that can offer us new categories to think with, a new kind of modes of thinking that we can bring in a critical relation with others? Or is it just a reiteration on the global?

**Brad Tabas:** I've done really a lot of work on the history of this concept of the planetary. I've been critical of this concept because for me, if you look at it historically, when people started talking about us living on a planet, it was precisely the moment when we became post-planetary. If I want to talk about this being a planetary age, that really started with Galileo, when he sees the moons around Jupiter and says "hell, we live on a planet too". So that would be the sort of planetary age that would extend from the moment of Galileo until the moment when we started sending satellites and other sorts of remote sensors, and finally human beings as well, off the planet. For me, we're in a post-planetary paradigm. And then you have this emergence of a discourse of the planetary in the environmental discourse. As people say, we went out in space, and we looked back at the Earth, and we saw that the Earth is this garden paradise on which everyone is together. It's a very nostalgic version of the Earth. And this is the first usage of the planet as a kind of ideal object that is going to bring us all together, give us hope, restore the closed cosmos, etc. this idea of the planetary is very influential within environmental thought. Now we know that we're earthlings. But it really is a very problematic discourse because firstly, it's predicated on us not being on Earth. We could say we left and we came back, but did we? If you really look at the development of this, you have this moment of people going out in space and seeing the Earth and seeing it myopically: they don't see the pollution, they don't see the divisions. Then they go back and then we're supposedly in this planetary age where we have planetary consciousness thanks to an overview effect. But almost all that we know about the planetary system and its crisis is coming from satellites that are studying it from space which are not people in space but they can see the Earth a lot better than we can. The importance of this knowledge, say for initiating the dawning of the Anthropocene, makes the idea of the Planetary Age problematic. It is a flawed concept because we were not thinking of ourselves that way until it was nostalgic. We have a very rich relationship to outer space right now. We've got lots of stuff in space, just not lots of people. And we get lots of data from that so where we are is on a planet, but a planet that we know via data from space, understand in terms of models of the planetary system derived from outer space. Which means we are sort of not planetary, and in a very meaningful way.

**Bruce Kapferer:** I'm sort of sympathetic with Sundar to some extent, but it seems to me that this task of anthropologists, and anthropology, initially, the term is



a holistic term. It refers to all humanity and it refers to approaches which should not ideally be limited ideologically by particular points within it, that is the critique of anthropology to a large extent, isn't it? It's that it's been white, if I could put it that way, it's been from the dominant end of the global spectrum in terms of politics, and it has systematically, as a discipline, imposed very, very ethnocentric visions of what the world may be, and so there's been this tension within the subject all the time to break out of that and the internal critique and the intention of the discipline is all about that. And so I think we should be very, very careful, as Sundar warns, that our view of the whole is not already a partial view determined ideologically. And the word planetary is very important in this regard. But I think what we're talking about is what Fred Hoyle noticed when the first photographs of the planet, of this blue planet were presented, which actually he argued, I think correctly, that that was a moment when in fact the consciousness of human beings on this planet became planetary. That is, even though it resisted it and became specific and so on, that was in fact a transformational moment in human consciousness, all human consciousness. It didn't work out that way, and there were all these things that are going on that Sundar was talking about, which are problematic indeed. But a planetary consciousness is as I understood your intervention, this is the intervention of this workshop, is the ability to have a look at the totality, at the whole system, but not from, in fact any particular position necessarily, or even intentionally to break with that. The planetary perspective is not so much about external space, but actually the reflection back upon our own realities and in fact, opening up to a radically new vision which resists all kinds of, to put it in Sundar's terms, localism. Internationalism often appears to me as just a localism in another sense, you know, so it moves backwards and forwards and so on. What I would understand by planetary is that which actually can strike theoretically and analytically at some of the great problems within anthropology, the enduring difficulties. I'd hate to see the word planetary just becoming another way in which people can study outer space or something. Of course, they must because human beings go there and do things with it and have all sorts of problems with it because of their humanity or their human beingness, which is shared by all. It used to be an argument that got anthropology going, but it destroyed it and quickly became something else, like a colonial legitimacy or a kind of political argument. But planetary, it seems to me, really forces anthropology to become what it promised. That's all. The planetary can really open things up in a way which could be quite exciting actually, and quite radical rather than just, you know, opening up another area that we need to invade.

**Brad Tabas:** My problem with the planet is that it is transparently not the whole. I mean it's not the whole of the places that human beings are involved with, it's not the whole of consciousness because you might say OK, consciousness is located in our heads but the contents of consciousness like the information that is in our



minds, isn't just about the Earth. We know about Mars. We know about all sorts of places in the solar system from those places, so the fact of the matter is – the planet is not the whole and for a lot of practices, even those of everyday people living their everyday lives on the planet, it's not the whole, it's not the only thing they're interested in and discounting the reality of all this stuff that's out there, both the natural stuff like other planets but also the non-natural stuff like our satellites, is a very short sighted way of thinking about the world. I think we might say that "we wanted it to be a holistic concept", but it's not really whole enough, and for sure, a concept like the Cosmos is, in a way, too holistic. It's so, so big, it's meaningless. I think that a legitimate epistemic holism has to at least be able to talk about all of our activities, all of the contents of our consciousness, all of our concerns. The planetary, the whole Earth, might express a certain utopian nostalgic vision of what we hoped would be everything (say in the late 1960s).

**Alita Regi:** Being a part of the student community, I have seen that students support space exploration. We believe this human endeavour supports innovation and economic prosperity by creating advances in science and technology while motivating the global scientific and technological workforce. Over the past year, I can list a set of students working full-time to make their dream of becoming astronauts true, and we're all from different countries. So how can you say this idea is merely local and not global? The thing is, we are from different countries, yet we support each other. So even if the most difficult boundaries separate us, we are coming together to bring that one dream of traveling to outer space. Why does the student community view space exploration much differently from the panellists?

**Sundar Sarukkai:** I want to think of the planet through the anthropological imagination and not one from physics. This would imply asking the question: how do I integrate different senses of the planet from different cultures? I will give the example of Indian narratives of planet. The idea of planet is integral to their cultural practices much before scientific definitions. For example, in the Hindu tradition, planets are worshipped. Nine planets, called the Navagrahas, are worshipped as deities. In most temples you will find a shrine for the planets. How do we now negotiate with the word planet? If you are really thinking of a really planetary, egalitarian project, how do you think of an egalitarian use of the word planet for people who worship them? What should the definition be then? The reason why planets are so important in Hindu cosmogony is because planets are seen to have an influence on individual lives, a view shared in various astrological practices in other cultures. Will space scientists coming from this culture somehow integrate the scientific and the religious view of planets? What then, becomes of the concept planet and whose concept of planet is going to dictate a planetary project that is primarily in the domain of the social sciences? I believe that any talk of the planetary has to imagine the consciousness of other people who are not like you,

who are not like us. How do we discover the meanings of the planet from societies in Asia and Africa? These notions are available as contemporary terminologies, not as some ancient, cultural artefacts. Given that, how do we as a “global” group conceptualise this word planet? This possibility is one that is primarily given by anthropology.

**Virginia Sanz Sanchez:** On the one hand, I see the planet as a concept that has this physicality like Sundar was saying, but on the other hand, the term “global” is a term that is more related to an economic and political point of view. Globalisation, globalism and global I think this is already an old view of the world because even nowadays the term globalism can also have a negative connotation with all the things that are happening globally. So, depending on the people or the cultures, everybody has a different concept for the same word and it’s very difficult to integrate all the views and agree on one single word that encompasses everything. And for me, the concept that we will be looking into the future will be the concept of “Singularity”, “Earth singularity”. This will include all, not only the planetary thinking, but it will include also the technological and all the cybernetics I think we should not lose the focus, just because we do not have one concept, it does not mean that it does not exist. There is something inside us humans that want to explore the universe and want to find our place in the universe. So this is also something that is inside ourselves. And I believe that establishing this goal for humanity as a whole, you know it will bring us motivation for all of us to get higher aims for humanity because at the end of the day, we’d like to be part of something bigger than ourselves. We have the technology right now. Now we need to have the means, we need to have the willingness to do that. A world in peace is needed. The universe is expanding and it’s expanding faster and faster. That means that every time that we are battling each other, we are losing time to reach our closest star. We are becoming more isolated in the universe, so it will be become harder and harder to go there.

**Anna Szolucha:** We can definitely see an inherent tension that exists there in the notion of the planetary. The planetary as, on the one hand, a sort of a more encompassing and open perspective – something that we can use to juxtapose to the more local, more closed down perspectives, something that’s anticipatory, something that is aspirational and then something that gives people motivation. And on the other hand, we have a sort of historical experience of how the planetary has emerged and how the planetary has been entangled with different technologies and histories and interests and powers. I think an important thing for [us], is also to try to figure out for ourselves whether this kind of a dynamic and tension is something that anthropology and ethnographic research can tap into and provide some insights.

**Iva Ramuš Cvetković:** I wanted to add something to the comment that was made by Alita, this gap between how experts see globalization, the cooperation on the

international level, the benefits that we get and the civil society who sees it as very distant, very elitist, very individualistic, is really present. And this was something that space legislation in the beginning tried to mitigate, and that's why the concepts which I mentioned before, the mankind and sharing space discoveries with general public, were included in space legislation in the first place. But the problem is, as I said, that they are not really respected in practice. First of all, because they're very vague and second, because we have these private actors that are kind of dictating the narrative in their own way. What I think the planetary turn debate can do with this term is to minimize this gap between the perceptions of space exploration in that it can help us understand that these terms are very important and should be put more into focus because in the end, space activities that are being conducted now were meant to be profiting the Earth and all humans.

**Giuliana Rotola:** I actually see planetary also as an old view of the world. I mean, planetary is already an old view and cosmic, Brad said that it's maybe too holistic, but I don't think it would be too holistic because planetary is already, for me, a failure in the sense that we see us as a planet versus something else that is outside and that creates the condition for, like Bruce said, the invasion of another world and the rest of the universe. So when we see planetary in the sense of care, maybe it can unify people on Earth under the same concept of planetary, but it still creates this division between what is planet Earth and what are the orbits. For example, we don't really have a solution for satellite constellations because in the US legislation, orbits are not seen as part of the terrestrial environment and therefore, we cannot apply environmental rules and the same will happen with the Moon and Mars and with the rest of the universe. If we think about the planetary, it's open in unifying us, but it's still not connecting the Earth as a part of the system that is the universe, and the larger cosmos. Planetary is an old concept and we should go further and go to a cosmic view rather than a planetary view, because otherwise we will repeat the problems that we have here on Earth like the climate crisis.

**Rob Krawczyk:** I'm quite interested in the idea of language in all of this, I feel like the Polish language is quite cosmic. Like, there's a lot of Polish writers who seem to write about it, you've got Olga Tokarczuk, Witold Gombrowicz. I'm quite fascinated by whether, it's probably controversial, but English [is] quite a functional language. It's a language to do with categorization and to do with like obviously, it has this colonial heritage, but it's also very functional in terms of being able to create the technologies that take us to space. But then there's other languages which are potentially less functional, but more expressive in terms of like, one word can mean vastly more meanings than in the English language. I think it's a big discussion between the US and China at the high level, which language is going to rule the Moon and things like that. But I think in another aspect it's

interesting to look at how all the different languages express the kind of planetary dimension.

**Anna Szolucha:** I just wanted to ask, maybe Zara because this is the kind of research that she has done I've been wondering if Zara, you could give us an insight into whether the work that the scientists working with the robots were doing, changed in any way their perspective on the future of Earth, of our planet?

**Zara Mirmalek:** To answer that, I need to take one step back and say that in my perspective as an ethnographer in these communities, I don't enter with privileging the human or the robot, but I, over time, noticed, and it repeated, that there was definitely a divide between those who are in the pool of "humans should be in space", and those who are in the pool of "robots only are needed to be in space and we don't need humans to go to space". That said, from a science and technology studies background as well, especially with the work of [Susan] Leigh Star and Bruno Latour and Donna Haraway, there's no difference between the human and the robot, so robots in space are humans in space, and to Brad's points about remote sensing, it is these mechanical devices that are in space, but it's the human eye that is capturing what's being collected through remote sensing. While that exists in reality, scientists working with robots understand themselves to be the operators, producers, consumers of the robots' vision, they don't necessarily extend themselves into the capacity of the robot and it's, you know, one of those surreal things to observe and participate in. It may be different in the private corporate program so to speak, in what takes place in the organisations of Bezos and Musk, two of the biggest ones, but there are many smaller companies that are pursuing space exploration. Oral histories [repositories] are places where you'll find accounts through which you can understand how they [scientists] see themselves after they've worked on certain projects. In situ, it's not something that people discuss and rather they find themselves needing to project that which is like the normal way of talking about the work that you're doing, whether it's with the robots or the humans. As in most communities, you communicate that which is, you know, the cultural norm in those environments.

**Anna Szolucha:** That's really fascinating. Thanks so much, Zara and now I'm going to turn to the team for a wrap up of the conversation.

**Karlijn Korpershoek:** What has become very obvious is that everybody has such specific views of the planetary and it can mean so many different things. This makes it a very interesting term but there are tensions between certain perspectives, whereas others are quite complementary. It was great to see that that discussion doesn't just concern the planetary, but also extends into the cosmos and what outer space means and what exploration means. I think one of my favourite things

was something that Marek said somewhere at the start, which was that we're living in such dark times and that most likely, the future is going to be quite dark. Despite that, there is a lot of hope coming out of that darkness as well. And I think that's what we really saw today.

**Peter Timko:** We're talking about how much we should emphasize whether there's a difference between what's happening on Earth and what's happening in space and where to draw the line between these two areas and how much we should emphasize the connections between the two. And we're also talking about the differences in the way people have historically looked at planetary – whether we should draw back to the beginning of the Enlightenment, or we should look towards something more recent like the Apollo program as the root of this term. We also talked about how there is differences in the cultural conceptions of planets themselves.

**Chakad Ojani:** I was very interested in the variety of answers when Anna asked about the different tensions harboured in the planetary. There are tensions between groups, in their interpretations of this concept; there are tensions within the concept itself; and there is another tension between those who would like to modify the concept and those who want to replace it. It made me think about my fieldwork. I'm in northern Sweden where the Swedish Space Corporation is currently developing small satellite launch capability. The discussion made me think about this tension – how these different groups use space infrastructures to elicit different kinds of planetary relations, which is also telling of the differences that are harboured in the planetary.

**Anna Szolucha:** Thanks very much, Karlijn, Peter and Chakad. And again thank you so much, all, for your participation.

## Acknowledgement

Research for this article received funding from the National Science Centre, Poland, project No. 2020/38/E/HS3/00241.

## Bibliography

Messeri L.R.

2010 *The Problem with Pluto: Conflicting Cosmologies and the Classification of Planets*, "Social Studies of Science", vol 40 (2), pp. 187–214.

White F.

2019 *The Cosma Hypothesis: Implications of the Overview Effect*.