

Piotr Urbańczyk

Copernicus Festival 2016: Beauty

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Piotr Urbańczyk

Centrum Kopernika Badań Interdyscyplinarnych
Uniwersytet Papieski Jana Pawła II w Krakowie

The 2016 edition of the Copernicus Festival took place on May 17-22 in Cracow. It was organized by Copernicus Center for Interdisciplinary Studies and “Tygodnik Powszechny” Foundation; co-organized by the Polish weekly magazine “Tygodnik Powszechny”, Foundation for Polish Science, Krakow Festival Office; held under the honorary patronage of Jacek Krupa – the marshal of Lesser Poland voivodeship; and done with the support of the John Templeton Foundation, The Ministry of Culture and National Heritage, the city of Kraków and Kraków UNESCO City of Literature¹.

Copernicus Festival, held annually, aims to demonstrate various dimensions of the relationship between science and culture. The third edition of the festival was devoted to the concept of beauty. During the six days of the festival about 7 thousand

¹ The full list of partners and patronages of the festival can be found online: <https://www.copernicusfestival.com/fc-partnerzy?view_fc_edycje=7210> [Accessed 27 July, 2016].

people took part in lectures, debates, discussions, workshops, concerts and other events.

The first day of the festival begun with the exhibition of *Libri picturati* – 16th-century volumes containing mainly illustrations of fauna and flora of the Dutch colonies (see de l'Écluse n.d.). The exhibition was followed by the talk of the director of the Jagiellonian Library, Professor Zdzisław Pietrzyk. Later that day there was a concert of baroque music combined with a lecture about the musical structures given by the mathematician, Jarosław Grytczuk. Capella Cracoviensis performed *Adoramus Te, Christe* by Monteverdi and two motets of Bach: *Komm, Jesu, komm* and *Jesu, meine Freunde* and Professor Grytczuk argued that two different languages – the language of music and the one of mathematics – could be very alike.

Most events that took place during the festival were organized into a few sessions. Every day started with “Breakfasts of the Champions” – the meetings with acclaimed Polish professors held in less formal tone. The participants had a chance to ask them more personal questions than it is accepted during academic lectures or debates. There were five such meetings:

- with the Horodecki family – Professor Ryszard Horodecki and his two sons: Professors Michał and Paweł Horodecki (quantum physicists);
- with Professor Andrzej Betlej (historian of art, the director of National Museum in Kraków),

- with Professor Elżbieta Muskat-Tabakowska (translator, the director of the Chair for Translation Studies and Intercultural Communication at Jagiellonian University),
- with Professor Karol Tarnowski (philosopher);
- and with Professor Ryszard Markiewicz (lawyer specialized in intellectual property).

The session named “Two books” was devoted to the relationships between science and religion. Within this session there were five discussions with the authors of mini-books published by Copernicus Center Press in the series entitled “Fifth Dimension”². The series consists of over a dozen essays written by philosophers, historians, physicists, biologists, prose writers and poets with the use of the variety of literary forms.

- The discussion with Professor Bartosz Brożek entitled *Leibniz’s dream* (see Brożek 2016) concerned the language of religion and its metaphorical, theoretical and apophatic levels.
- The meeting with Zbigniew Liana entitled *Giordano Bruno. A martyr of science or a charlatan?* (see Liana 2016) was devoted to the famous Italian friar burned at the stake in Rome’s Campo di Fiori in 1600.

² The books are available online: <http://www.ccpres.pl/katalog/cat-Piaty_Wymiar-28.html> [Accessed 30 July 2016].

- The meeting with Wit Szostak entitled *Endnotes* (see Szostak, 2016) was devoted to the relationships between *mythos* and *logos*.
- The discussion with Mateusz Hohol entitled *From the self-control to the virtue* (see Hohol 2016) regarded the concept of free will and the moral psychology.
- The debate with Łukasz Lamża entitled *The beginning of the world as the end of rationality* (see Lamża, 2016) concerned the possibilities and limits of scientific method.

The session named “Perceptio” consisted of six thematically unrelated events. Nevertheless, all of them were meant to show various aspects of beauty. The first of these events was already mentioned lecture of the director of Jagiellonian Library. During the lecture Professor Pietrzyk told the story of the contents of so-called “Berlin collection” – hundreds of original manuscripts brought to Poland by German occupiers at the end of World War II. The following five events that were held within the “Perceptio” session are listed below.

- *Florence as a form of spiritual life* (the 50th anniversary of the Florence Flood) – the meeting with Ewa Bieńkowska (historian of literature and essayist) and Professor Dariusz Czaja (cultural anthropologist).
- *Ballet for the masses. The beauty of football* – the discussion with the Orest Lenczyk (former football manager),

Stefan Szczepłak (sport journalist) and Professor Bartosz Brożek (philosopher).

- *Icons. Beauty as a proof of God* – the discussion on the transcendental beauty with Michał Klinger, Witali Michalczuk, Łukasz Hajduczenia, Henryk Paprocki and Łukasz Leonkiewicz.
- *Beautiful scan* – the discussion with Marek Bieńczyk (writer and wine critic), Wojciech Nowicki (food critic and photographer) and Maciej Nowicki (chef).
- *Symmetry in music* – the concert of chamber ensemble combined with the lecture of Professor Anna Brożek (philosopher, pianist) concerned various forms of symmetry in music.

Undoubtedly, the culminating points of each day of the festival were the “Keynote speeches”. First of them entitled *The origin of structure and beauty in the Universe* was given by Professor Julian Barbour. The main conjecture of the talk was that timeless laws of geometry and dynamics are the origin of time, structure and beauty of the Universe. The laws by themselves are sufficient according to this conjecture – no special extra conditions are needed. The key timeless laws are the laws of geometry and dynamics. Nevertheless, since all these laws are time-symmetric, why all processes we observe in the Universe have a common direction – whence comes the arrow of time? This question was the main subject of the talk.

The second keynote lecture entitled *Beauty in physics, mathematics and biology* was delivered by Professor Gregory Chaitin. He argued that beauty in the cases of theoretical physics, pure mathematics and biology can have something in common with mathematical concepts of simplicity and complexity. In theoretical physics there are simple laws that explain very rich world we live in. It was thought that the origin of beauty in pure mathematics is the fact that there are simple sets of axioms and logical rules that would produce all mathematical theories. The results of Gödel, Turing and Chaitin showed that it is not the case. Chaitin claimed that the pure mathematics may have different kind of beauty, more closely related to the beauty in biology – namely, of being an area, where there is possibly infinite amount of creativity.

Third keynote speech entitled *Is beauty on the side of good and freedom? Reflections inspired by the poem of Zbigniew Herbert “Potęga smaku” (“The Power of Taste”)* was given by Professor Stefan Chwin – Polish novelist, literary critic and historian of literature. It concerned the dreadful aspect of beauty. Chwin’s reflections constituted the background that served to pose important question: Are moral decisions a matter of taste? Has beauty anything in common with the truth? According to the lecturer the beauty can be deceptive and should not be trusted.

The lecture of Professor Semir Zeki was entitled *The neurobiology of aesthetic experiences and the significance of beauty*. Professor Zeki sketched the key topics in the field of neuroes-

thetics. Surprisingly, the experience of beauty derived from both the sensory sources (such as visual art or music) and from highly cognitive ones (such as mathematics) correlates with activity in the same part of human brain. This raises important questions about the role of beauty in our everyday experience as well as in our efforts to understand the structure of the Universe in which our brains have evolved.

The last keynote speech entitled *Geometrical beauty of the Universe* was delivered by Professor Michał Heller. The main thesis of the talk was that the Universe, like the masterpieces of the art, is governed by the fundamental principles of symmetry and composition. Professor Heller quoted Einstein's considerations on the selection and evaluation of scientific theories. The theories can be judge according to two point of views: "external confirmation" and "inner perfection". The former criterion is obvious – a good theory has to be consistent with the empirical data. The latter, however, is much more difficult to explain. There is general agreement among physicist that the simpler (or more beautiful) a given theory is, the better. This criterion perfectly applies to the theories in cosmology.

Furthermore, the guests of the festival took parts in the "Main debates". There were five such events directly after „Keynote speeches”:

- *Beauty as the criterion of truth* with Professor Julian Barbour, Professor Gregory Chaitin, Virginia Chaitin and Professor Michał Heller;

- A very interesting debate entitled *Is every scientist an artist?* with Stanisław Bajtlik, Justyna Olko and Professor Marcin Szwed on the artistic aspects of scientific work;
- The interview with the John Banville. The general topic of the conversation was the relationship between science and literature;
- The discussion titled *The beauty of nature* with Professor Semir Zeki, Professor Piotr Winkielman, Professor Mariusz Cichoń and Marcin Rotkiewicz (the main topic of the discussion was the kin selection);
- The closing debate entitled *The praise of imperfection* with Professor Dominika Dudek, Professor Michał Heller and Professor Bartosz Brożek.

The festival was accompanied by many other events: movie projections, workshops, debates, concerts and lessons for youth and children. It would be too excessive to describe them in a short report. Polish-speaking readers can find an exhaustive account of each day of the festival on the website – www.copernicusfestival.com (see Sowiński, 2016a, 2016b, 2016c, 2016d, 2016e, 2016f). Moreover, most of the events described above were recorded and are available on Copernicus Center for Interdisciplinary Studies YouTube channel – www.youtube.com/CopernicusCenter.

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