

## Multimedia Spectacle *At the Intersection of Two Infinities* at the 45th Congress of Polish Physicists in Krakow (Poland), 13–18 September

A unique multimedia spectacle, entitled *At the Intersection of Two Infinities*, provided spectacular evening entertainment at the 45th Congress of Polish Physicists, held in Krakow, 13–18 September 2019. Directed by Professor Adam Maj, from IFJ PAN, the show interweaved educational elements in a dazzling combination of music composed and performed by musical legend Józef Skrzek (and other artists; see below), with special narration, performed by Dr. Hab. Jerzy Grębosz from the IFJ PAN, which accompanied the associated films and animation videos.

Combining music, film, and spoken word (Figure 1), the entire history of our universe was illustrated from singularities that triggered the Big Bang (Bubble Universe - Multiverse), through the Big Bang and the production of elemental hydrogen, it continues with the formation of stars and the nuclear nucleosynthesis of the light elements (helium to iron), and to cataclysmic supernova explosions which allow the elements heavier than iron to form. It is the resultant scattering of these elements into the vastness of the Universe, fragments of which coalesced into a planet orbiting in the “goldilocks” zone around another star, that ultimately created life on Earth. The climactic suite of music refers to this fact—that the Universe gave birth to us, the “Children of the Stars,” people living, as Blaise Pascal put it, “at the intersection of two infinities”: the microcosm of atoms and the macrocosm of the Universe. The show concluded with a possible vision for the



**Figure 1.** Snapshot from the multimedia extravaganza that combined music, film and spoken word, to illustrate the entire history of the Universe.

end of our Universe, namely as a result of the “Big Rip,” featuring the epic role supermassive black holes may play in this endgame scenario, leading finally to the possibility of creating a new singularity and perhaps a New Universe!

This special physics feast for the ears, eyes, and brain was directed on the basis of a script prepared by Adam Maj, Jerzy Grębosz, and Bogdan Fornal from IFJ PAN and Mark Riley from Florida State University. The literary texts of Krzysztof Niewrzęda were also used. In addition to Józef Skrzek (keyboards), the show featured Jerzy Grębosz as narrator, Mirosław Muzykant on percussion instruments, CzeT Minkus on electric trumpet, the Nowodworski Choir (conductor Ryszard Żróbek),

Ela Skrzek (vocal), and school children Wiktoria and Julia Minda (saxophone and oboe).

The show was dedicated not only to the participants of the Congress, but was open to the general public. In total, approximately 1,000 people were in the audience, all of whom enthusiastically witnessed this wonderful spectacle bringing together art and science!

The event was filmed and the film can be downloaded from <https://www.ifj.edu.pl/en/popularization/spectacle-mgs/>

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