Ladies and gentlemen, Mesdames et messieurs!

Christophe Marcenat is an internationally recognized physicist in the field of quantum materials. It is one of the most advanced and promising directions in the fields of physics and materials science. It lies at the forefront of enabling new devices and technologies for the forthcoming second quantum revolution. His research focuses primarily on novel classes of superconductors — materials whose fundamental physical state is a macroscopic quantum coherent condensate, characterized by zero electrical resistance, magnetic flux expulsion, and quantization of circulating currents. These unique properties make superconductors ideally suited for a wide range of revolutionary applications, from energy transmission and the generation of intense magnetic fields, to the development of quantum sensors capable of detecting extremely weak neural signals, superconducting electronics, and the construction of qubits for quantum computation.

Dr. Christophe Marcenat has made major contributions to the understanding of several types of superconductors, particularly through the development of unique microcalorimetry techniques able to probe the fundamental thermodynamic state of materials at ultra-low temperatures and under extremely high magnetic fields. Importantly, these advances were achieved almost invariably in close collaboration with the *Center of Low Temperature Physics* of the Institute of Experimental Physics, Slovak Academy of Sciences in Košice, led by Prof. Peter Samuely.

Dr. Marcenat graduated from the prestigious French École Centrale Paris (whose alumni include Gustave Eiffel, Armand Peugeot, and others), where he studied physics and materials science (1983). Following his PhD studies in Grenoble in 1986 at the *Centre National de la Recherche Scientifique* (CNRS), he undertook two postdoctoral appointments abroad: at the Lawrence Berkeley National Laboratory in the United States, and at the Université de Genève in Switzerland, where he focused on the study of heavy-fermion systems.

He currently works at the Commissariat à l'Énergie Atomique (CEA) as a *director of research* in condensed matter physics, while also holding a position as Permanent Invited Researcher at the Institut Néel, (CNRS) in Grenoble, France. He is also a member of two internationally associated laboratories: lab of Superconductivity at the Karlsruhe Institute of Technology, Germany, and Quantum Materials and Circuits at the University of Sherbrooke, Quebec,

Canada. He has received two CEA awards for outstanding research: for the development of microcalorimetry in a diamond anvil cell (2001), and for the discovery of superconductivity in doped silicon (2009).

His collaboration with the *Center of Low Temperature Physics* in Košice has lasted for over 20 years. It began with research on superconducting magnesium diboride (MgB_2), where a new type of superconductivity was discovered which leads to a higher superconducting critical temperature of the material. MgB_2 has since found practical applications in medical tomographs. The joint work, published in the leading physics journal *Physical Review Letters* in 2001, has now received 500 citations in the Web of Science (WOS) and has earned several awards, including recognition for exceptional citation impact from Web of Science.

Another joint work with Low Temp Centre in Košice on the study of doped diamond and silicon semiconductors, has yielded groundbreaking results and joint publications in leading journals such as Nature (2006) and Physical Review Letters (2004). Joint work by Dr. Marcenat and Dr. Jozef Kačmarčík, including publications in Nature (2019) and Physical Review Letters (2018), has provided significant insights into the nature of so-called pseudogaps in cuprates, as well as the interplay between superconductivity and charge density waves. These results contribute to the ongoing effort to understand the mechanism of high-temperature superconductivity, which has remained an open question for nearly 40 years since the discovery of these systems. Within the framework of Slovak-French-Japanese collaboration, the fine structure of quantum oscillations in graphite was successfully investigated. The joint publication reporting these results appeared in Nature Communications (2023).

Dr. Marcenat's collaboration with the centre in Košice is long-standing, continuing almost uninterruptedly since 2001. During this period, he spent more than one year at the Košice facility, while Košice-based physicists spent many months conducting experiments in high magnetic fields laboratories in Grenoble.

As he celebrated his sixty-fifth birthday this year, Slovak Academy of Sciences decided to honor his work and collaboration with Slovak scientists and recognize his outstanding contributions to science by awarding him the International Prize of the Slovak Academy of Sciences in the field of natural sciences.

Dear Christophe – Congratulations !