Ladies and gentlemen,

Today, we pay tribute to a scientific trailblazer, Professor Michael Nitsche, whose pioneering contributions to neuroscience have significantly advanced the field of rehabilitation sciences. He investigates how human performance and working conditions can be improved through neuroscientific interventions, such as brain stimulation, and neuroscience-based adaptation of working conditions. This is increasingly crucial in today's global context, which demands lifelong learning, adaptation to new conditions, and is characterized by constantly increasing cognitive demands. Furthermore, preserving functionality into older age—an area of significant interest to Michael—is a pressing need in our aging society. Maintaining independence and daily activities enhances the quality of life and reduces the strain on healthcare systems. Functionally independent older adults can contribute more significantly to the economy and lessen the caregiving burden on families.

Michael is a leading figure in the development of transcranial direct current stimulation (tDCS), a form of neuromodulation via non-invasive brain stimulation that enhances cortical plasticity. He was the first to systematically scrutinize the mechanisms of action of this intervention and explore the technical, medical, and ethical conditions of safe cognitive enhancement in humans by rigorously grounding enhancement techniques in knowledge about the neuroscience and psychology of the human brain. He has significantly broadened our knowledge about the impact of neurotransmitters and modulators on plasticity and cognitive processes in the human brain, with potential for the development of new neuroenhancement tools in the future.

His work with non-invasive brain stimulation (NIBS) techniques, particularly transcranial direct current stimulation (tDCS) and transcranial magnetic stimulation (TMS), has reshaped our therapeutic strategies for neurological rehabilitation.

Michael's rigorous scientific investigations have provided foundational insights into the mechanisms by which NIBS can enhance cortical plasticity and facilitate recovery from neurological insults. His research has systematically explored how different parameters of tDCS, such as intensity and polarity, affect the excitability of cortical neurons. This has profound implications for rehabilitation, offering targeted approaches to enhance motor function and cognitive recovery in patients suffering from stroke and other neurological conditions. He has demonstrated through numerous studies that tDCS, when applied to the motor cortex, can significantly improve motor function by enhancing the brain's natural capacity for plasticity. This has opened new rehabilitation avenues that integrate tDCS with traditional physiotherapeutic techniques, providing a synergistic effect that significantly improves recovery outcomes.

Beyond motor recovery, Michael has also expanded the applications of NIBS to address a range of cognitive and functional impairments. His investigations into the effects of NIBS on gait, balance, and lower limb function have shown promising results in improving mobility in stroke survivors. Michael’s commitment to a multimodal approach has notably enhanced the field's understanding of the interconnectedness of brain networks. By combining NIBS with advanced neuroimaging techniques, he has helped map the neural substrates of rehabilitation, paving the way for more effective and precisely targeted interventions.

His dedication to the safe and responsible use of NIBS is exemplified by his leadership in establishing guidelines and ethical standards for its application. This has been crucial in navigating the challenges posed by the proliferation of "do-it-yourself" NIBS kits and ensuring that the expansion of these technologies into clinical and home settings is based on solid scientific evidence and ethical practices.

Today, as we honor Michael Nitsche, we recognize not only his scientific acumen and innovative spirit but also his unwavering commitment to improving human health and well-being through the responsible application of science and technology. Michael Nitsche believes in the integrative power of science and research at the international level and its crucial relevance for progress. But above all, Michael is a very open and approachable scientist. He looks without bias at every opportunity, no matter who it comes from, to make progress in the field. This inclusive approach has enabled many researchers, including myself, to collectively advance this exciting field of research.

Ladies and gentlemen, dear Michael, it is my privilege to nominate you as an honorary doctor of UHasselt, a luminary in neuroscience and an ardent advocate for rehabilitation sciences.