The Musical Instruments of the 21st century and those of earlier times differ from each other in several ways. The technologies and materials used in the construction of musical instruments have evolved considerably, and the way in which they are played has also changed. The discussion will be centered around the question of how contemporary instruments are developed, and the role of technology in this process.

10:00 Introduction by Alberto de Campo and Stefan Weinzierl

10:05 Identity Issues by Sarah Hardjowirogo

10:15 Identity Issues by Sarah Hardjowirogo

10:20 Musical Instruments in the 21st Century

10:25 What if Your Instrument is Invisible?: issues with live sound processing of sound in improvised music by Dafina Nagapiti

10:30 How Does the Materiality of the Electronic Instrument Affect Sonic Identity and Development of an Audio-Processing “Instrument”?, by Till Bovermann and Dominik Hildebrand

10:35 The Body as Musical Instrument by Atau Tanaka

10:40 Identity Issues by Sarah Hardjowirogo

10:45 Identity Issues by Sarah Hardjowirogo

10:50 Musical Instruments in the 21st Century

10:55 What if Your Instrument is Invisible?: issues with live sound processing of sound in improvised music by Dafina Nagapiti

11:00 The Body as Musical Instrument by Atau Tanaka

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11:10 Musical Instruments in the 21st Century

11:15 What if Your Instrument is Invisible?: issues with live sound processing of sound in improvised music by Dafina Nagapiti

11:20 Musical Instruments in the 21st Century

11:25 What if Your Instrument is Invisible?: issues with live sound processing of sound in improvised music by Dafina Nagapiti
Musical Instruments in the 21st Century

Identities
Configurations
Practices

11:00 Instrumentality as Distributed, Interpersonal and Self Agential by Denz Pateras
denz.pateras@ucalgary.ca
Institute for Musicology, University of Music Graz

Based on P. Althusser's understanding of instruments and the instrumentality of the music, the talk discusses a genuine instrumental discovery. During an improvisatory extension of the piano as a part of a neo-avant-garde, an astonishment often comes back in a broad vision, resulting in an additional voice. Analysing the situation of the discovery and its aesthetic implications, I offer a contribution to Althusser's notion of instrumentality. The talk aims to examine the phármaco of instrumentality, with particular reference to instrumental music in which a significant change in the role of the performer occurs. The talk is based on a recent publication forthcoming in the volume on "Instrumental Forms: New Perspectives on Instrumentality" (ed. by S. Weinzierl and D. Pateras, MIT Press, 2022).

10:00 Interactivity of Digital Musical Instruments: Implications of Classifying Musical Instruments on Basic Music Research by Jin Hyun Kim and Uwe Seifert
Institute for Musiocology and Media Science, HU Berlin

jin.hyun.kim@hu-berlin.de
Institute for Musicology, Universität zu Köln

The introduction of the computer as musical instrument and the development of interactive musical instruments have led to a variety of new possibilities for music research. In this paper, we propose a classification system of musical instruments and at the same time to rethink the concept of machines as (abstract) automata. In addition, we exploit concepts from computing systems, to some extent, have the potential to act as autonomous agents. The paper discusses the implications of this classification system for music research.

11:45 Panel Discussion: What counts as ‘success’ in musical instrument design? with Stefan de Campo (HU Berlin), Stefan Witschel (TU Berlin), Marko Zekollari (Aalborg), Florian Greta (Náutic Instruments), Atau Tanaka (Goldsmiths’ London) and Jin Hyun Kim (Humboldt-Universität zu Berlin)

Musical instrument design concerns originating in many disciplines, each introducing a different point of view. This panel aims to engage a discussion bridging these disciplines, and find new insights emerging from the common academic, artistic, scientific, theoretical, practical and pop-cultural viewpoints.

Stefan Witschel

is physicist and musiciologist and he holds the chair of the Audio Communication Group at the TU Berlin. He is chairman of and one of the initiators of the 3DMIN project.

Florian Greta

works as Senior Product Designer at Náutic Instruments. He studied Cultural Science and Media Studies at the Freie Universität Berlin, and music and computing at the Technische Universität Berlin, and holds a degree from Zeppelin Universität Friedrichshafen.

Marko Zekollari

is an Application Developer at Aalborg Instruments. He holds a Ph.D. in Music Technology from McGill University in Montreal, Canada, where he was a member of the Interactive Music and Interaction Lab (DIMM) and the Computational Acoustics Modeling Laboratory (CAML). His research focuses on interaction design, graphical user interfaces for music performance, and novel “soft” hardware instruments. He is the developer of the Diffi-Note Software Performance environment, which he has privately internationally.

For the biography of the rest of the participants please refer to the previous talks’ descriptions.

16:45 Characteristics of an instrument in foreground - what we can learn from traditional instruments by Son Rui Chenn
sonrui.chenn@uibk.ac.at
Department of Computer, Electrical, and Telecommunications Engineering (ITEC), Rectorate, University of Innsbruck (RIT)

Music often consists of multiple instruments and parts. Some serve a more formal function, the piano part, for example, serves as an independent source of instrumental support (namely, as accompaniment). Musical solos are probably the clearest example of the foreground usage. What factors then make such a specific instrumental arrangement attractive for performing a solo function? In this talk, we examine the popularity of an instrument to play a solo role using four factors: pitch, loudness, timbre, and expressive potential. We focus on the concept of contextualism in Western classical music, since the titles bear a clear designation of the solo instrument(s).

Results show that an instrument is more likely to serve in a solo role when it has a higher median pitch, is highly salient timbre, and there are a larger number of trained musicians. These findings could be applicable to the development of new instruments, especially when they are expected to serve in a foreground role.

Son Rui Chenn is currently a postdoc researcher at the Rectorate of University of Innsbruck. She studied her Ph.D. in music technology from McGill University in 2011. She spent the next three years at the Ohio State University as a postdoctoral fellow in music cognition. She holds an Engineer’s degree in Electrical Engineering from Stanford University. A Master’s degree in Electrical Engineering from the University of Tokyo, and a Bachelor’s degree in Electrical Engineering from Chonbuk National University in Korea. Her research interest is timbre perception and auditory attention.

15:15 Instruments unheard of: Familiarity and sound source categories in timbral perceptions by Kai Sniberg
kai.sniberg@rub.de
Signal Processing Group, Department of Medical Physics and Acoustics Cart von Dänemark Universität Oldenburg

Traditionally, timbral memory has been treated as a sensory phenomenon, that is, as a surface feature that resides in the moment. The role of familiarity with sound source categories and instrument families has remained unexplored. This talk takes a deductive cognitive view on timbre and argues that long-term familiarity and knowledge about instrument categories affect even a supposedly low-level task like dissimilarity ratings. Experiments on the role of sound source category knowledge in timbral dissimilarity ratings and short-term recognition are going to be discussed in detail. It will be argued that timbral perception cannot be understood in terms of an intrinsically separate and categorical representation, reflecting an intrinsic layered and categorical perceptions and representations of musical instruments. Implications for the design of novel musical instrument designs will be discussed.

Kai Sniberg studied Mathematics and Musicology at Humboldt-Universität Berlin and is a fellow student at the University of California, Berkeley. After some time at the Austrian Research Institute for Artificial Intelligence in Vienna, he obtained his Ph.D. in Music Technology from McGill University in 2016. At present, he is a postdoctoral fellow at the University of Copenhagen. His work has been recognised by governmental and private institutions and is published in an array of journals spanning the domains of sound generation, psychology, and music.

15:45 Intervening the Space: Instruments of Spatial Sound Control in Real-Time Music Performances by Andreas Pysiewicz
Institute for Musicology, Humboldt-Universität zu Berlin

The spatialisation of sound, i.e. the systematic projection of sound in space through a loudspeaker system, is widely considered as one important compositional design strategy of Western music in the 20th century. A lot of attention has been paid to the artistic concepts and the compositional process of sound in space. However, there is still a lack of systematic discourse of spatial sound projection as performance context and the tools for spatialisation. In order to address this shortcoming, this contribution compiles an inventory of controllers for the real-time spatialisation as part of the performance, and offers a systematic classification of controllers. In addition, it discusses the existing theory and practice of digital musical instruments (DMIs) and aspects of virtuosity, instrumentality and liveness, we face conceptual issues and technical challenges, which requires new design strategies to contribute to a more consistent spatialisation practice.

Andreas Pysiewicz is a sound/media engineer specialising in the production of electro-acoustic music and experimental sound and media art. He manages the Electronic Music Studio of the Technical University of Berlin and is a sound/media engineer specialising in the production of electro-acoustic music and experimental sound and media art. He manages the Electronic Music Studio of the Technical University of Berlin and is an artist working with spatial audio systems and the enactment of sound in space as part of the artistic performance practice. His current research interests include the application of spatial audio systems to the creation of immersive architectures, visual music and systems engineering as an artistic field. He has performed and exhibited at various international festivals and has issued several records. Currently, he is part of the artistic research ensemble Karm Theory and a member of the Research Group for Convergences between Art, Science and Technology (GIIP) at the Technical University of Berlin.

20:00 - 22:30 Concert Evening with Alberto de Campos, Alexander Peterhaensel, Amelie Hirichsen, Atau Tanaka, Dalia Naghavi, Dominik Hildebrand and Marqués Lopes, Hanne Hoisel, Hans Tammen, Jonas de leon, Katharina Rauhe, Maarja Baalmin and Tii Bevermann
Alexander Peterhaensel is an interdisciplinary multimedia artist, performer, composer and musicologist. He has released and produced multiple albums with self-styled music and multimedia expressions on his own label. His solo and collaboration works have gained attention from several different music and art media platforms and have been awarded several international prizes and commissions. Currently he is part of the artistic research ensemble Karm Theory and a member of the Research Group for Convergences between Art, Science and Technology (GIIP) at the Technical University of Berlin.

Inna N. Kashyap is an active performer and sound artist. She studied sculpture trough her various personal and professional endeavours in the field of music and multimedia. She is a Berlin-based audio and visual artist. She studied Philosophy at Rheinische Friedrich-Wilhelms-Universität Bonn and continued her studies at the University of Applied Sciences Düsseldorf, Germany.

For the biography of the rest of the participants please refer to the previous talks’ descriptions.