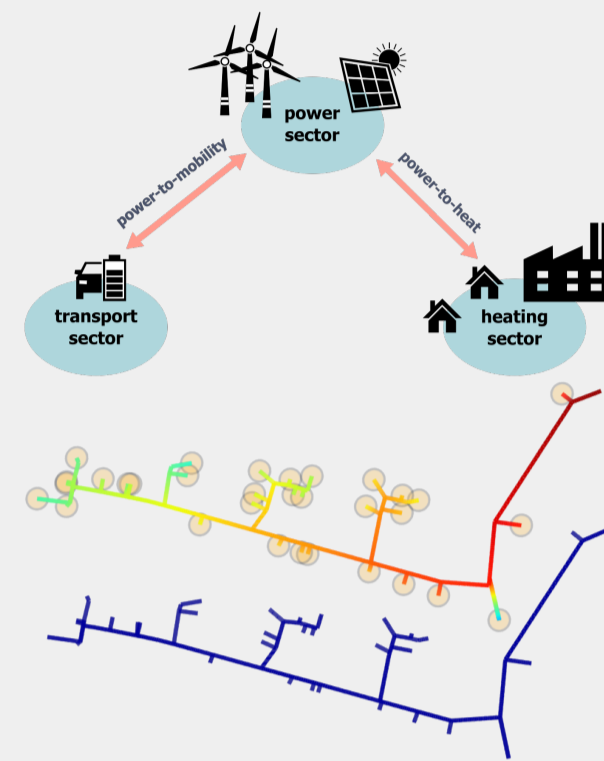


Digital Twins: Modeling, Simulation and Control of Modern Energy Systems

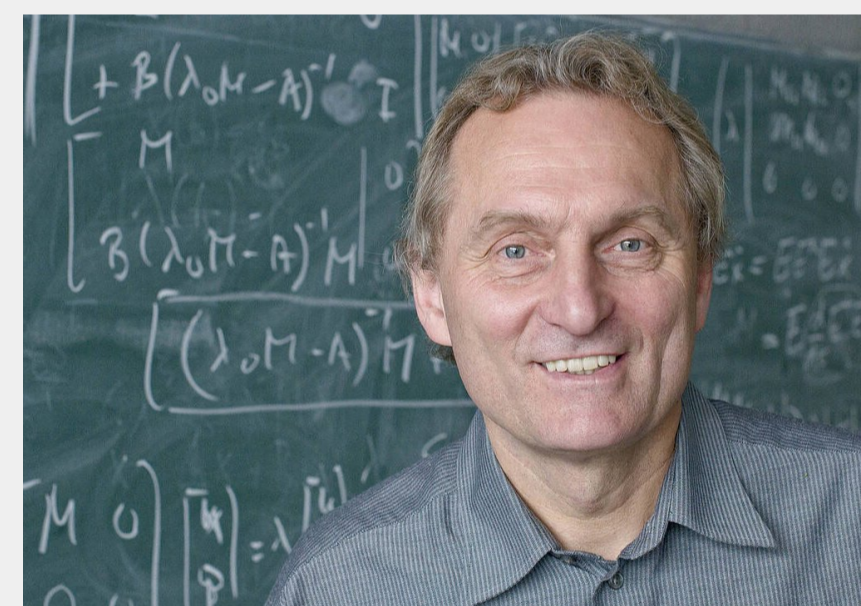
Thursday
March 24, 2022
4pm, SERC 116

The next level of digitization will create digital twins, i.e., virtual models that twin with every technological product or process and allow to observe and predict the behavior of a physical system during the whole lifetime. An important application for such digital twins is the sustainable operation of the energy sector and its conversion to green energy sources, e.g., in the coupling of power, gas, or district heating networks. This talk presents the energy-based modeling paradigm via port-Hamiltonian systems, where the coupling of different physical domains is done via energy variables. We demonstrate the new paradigm at the hand of the operation of several real world energy networks.



Speaker Bio: Volker Mehrmann

Volker Mehrmann received his Ph.D. and habilitation from the University of Bielefeld, Germany. After research years at Kent State University, the University of Wisconsin, and IBM Research, he held faculty positions at RWTH Aachen and TU Chemnitz. Since 2000, he is a full professor of Mathematics at TU Berlin. He served as president of GAMM, and chair of MATHEON, the Research Center ‘Mathematics for key technologies’, and of the Einstein Center ECMath. At present, he is president of the European Mathematical Society.



Mehrmann is a Fellow of SIAM and AMS, and editor-in-chief of Linear Algebra and its Applications. He has held an ERC Advanced Grant. His research interests are in the areas of numerical mathematics/scientific computing, applied and numerical linear algebra, control theory, differential-algebraic equations, and in energy-based mathematical modeling.

Conference: 65th Birthday Professor Daniel Szyld, Temple University, CST, Mathematics



Thursday March 24, 2022 – Saturday March 26, 2022

Speakers from the US, Canada, France, Germany, Greece, Ireland, Italy, Morocco, and Spain honor the 65th birthday of Daniel B. Szyld, Professor of Mathematics at Temple University.



Event website: <https://www.maths.tcd.ie/~ksoodha/szyld2022>