Process Systems Engineering (PSE) is the scientific domain within chemical engineering, of describing and analyzing the behavior of a physicochemical system via mathematical modeling, data analytics, design, optimization and control. The webinar will provide a guide towards the evolution of PSE by looking at its history, core competencies, current status and future trends. We will first briefly present some of the key theoretical developments and computational tools in PSE. We will then argue that the versatility and effective employment of PSE methods and tools can offer a systematic platform to address current and future societal, industrial and scientific challenges that require a holistic, systems approach, in energy, the environment, the ‘industry of tomorrow’, and sustainability. We will finally outline the foundations of a Circular Economy Systems Engineering paradigm, that may provide The Generation Next of PSE’s thinking and practice.
Professor Pistikopoulos is the Director of the Texas A&M Energy Institute and holds the Dow Chemical Chair in the Artie McFerrin Department of Chemical Engineering at Texas A&M University. He was a Professor of Chemical Engineering at Imperial College London, UK (1991-2015) and the Director of its Centre for Process Systems Engineering (2002-2009). He holds a Ph.D. degree from Carnegie Mellon University and he worked with Shell Chemicals in Amsterdam before joining Imperial. He has authored or co-authored over 500 major research publications in the areas of modelling, control and optimization of process, energy and systems engineering applications, 15 books and 3 patents. He was a co-founder of Process Systems Enterprise (PSE) Ltd, a Fellow of AIChE and IChemE and the current Editor-in-Chief of Computers & Chemical Engineering. In 2007, Prof. Pistikopoulos was a co-recipient of the prestigious MacRobert Award from the Royal Academy of Engineering. In 2012, he was the recipient of the Computing in Chemical Engineering Award of CAST/AIChE. He received the title of Doctor Honoris Causa from the University Politehnica of Bucharest in 2014, and from the University of Pannonia in 2015. In 2013, he was elected Fellow of the Royal Academy of Engineering in the UK.