

In Memoriam Christian Mieke (1956-2016)

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ABSTRACT



Too early and unexpected we lost our esteemed colleague and friend Christian Mieke who passed away on August 14, 2016 at the age of 60 after a serious illness. Christian graduated in Civil Engineering at the University of Hannover. After spending two years as post-doc at Stanford University and the subsequent habilitation he was called to the Chair for Applied Mechanics and Material Theory at the Department of Civil and Environmental Engineering of the University of Stuttgart in 1995. In the over 20 years as head of the institute his research group became one of the most successful and internationally leading institutions in applied and computational mechanics.

Christian Mieke's exceptional scientific achievements in solid and structural mechanics and in particular in modeling of heterogeneous materials were characterized by an amazing breadth and impressive depth. His research in structural modeling, shell theories, finite elements for solids, optimization methods including parameter identification were characterized by a lot innovations. He established general concepts for the analysis of material behavior representing the complex microstructure and its evolution on several scales, also in multi-physics environments. They include advanced homogenization and multi-scale techniques with many novel features, for example using mathematically rigorous minimization principles. His recent works on phase field models were milestones opening a new door for modeling solids at fracture.

Since Christian Mieke was a frequent plenary speaker at COMPLAS we would like to honor his ground-breaking contributions in the area of this conference with this special session on *Modeling of Heterogeneous Materials with Complex Microstructure*. We invited a few colleagues, former students and friends who maintained a close relationship to Christian addressing his fundamental research field.