

Second-order chain rules and their applications in stability and numerics

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The talk deals with the computation of second-order subdifferentials of composite functions, where the inner mapping is twice continuously differentiable and the outer extended-real-valued function is lower semicontinuous. The respective chain rules require suitable first- and second-order constraint qualifications. The obtained results can be applied, among other things, to the computation of (limiting or regular) coderivatives of normal cone mappings to pre-images of sets which arise frequently in various stability criteria for parametric variational systems. Moreover, they can be used also for the numerical solution of MPECs within the so-called implicit programming approach.