

# Reversible methods of Runge-Kutta type for index-2 DAEs

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A new interpretation of Runge-Kutta methods for index-2 DAEs is presented : within this framework, a step of the method is described by a smooth map in an augmented Euclidean space. This map can be seen as a one-step method for a higher dimensional ODE system, whose smoothness allows for standard results for ODEs such as convergence and backward error analyses to be applied. The merits of post-projected and symmetrically projected methods (which both fit into this framework) for the long-term integration of reversible systems are then compared.