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Malgorzata Peszynska* (mpesz@math.oregonstate.edu), Department of Mathematics, Oregon State University, Corvallis, OR 97331. *Adaptive modeling and upscaling.*

Adaptivity in numerical methods for PDEs is usually understood as choosing the best spatial and temporal discretization for a given PDE model with fixed data. In the talk we present new results which allow to adapt the underlying model itself or its data or the scale at which they are considered. Theoretical a-posteriori error estimates and numerical examples are presented for flow and transport in porous media. (Received September 12, 2005)