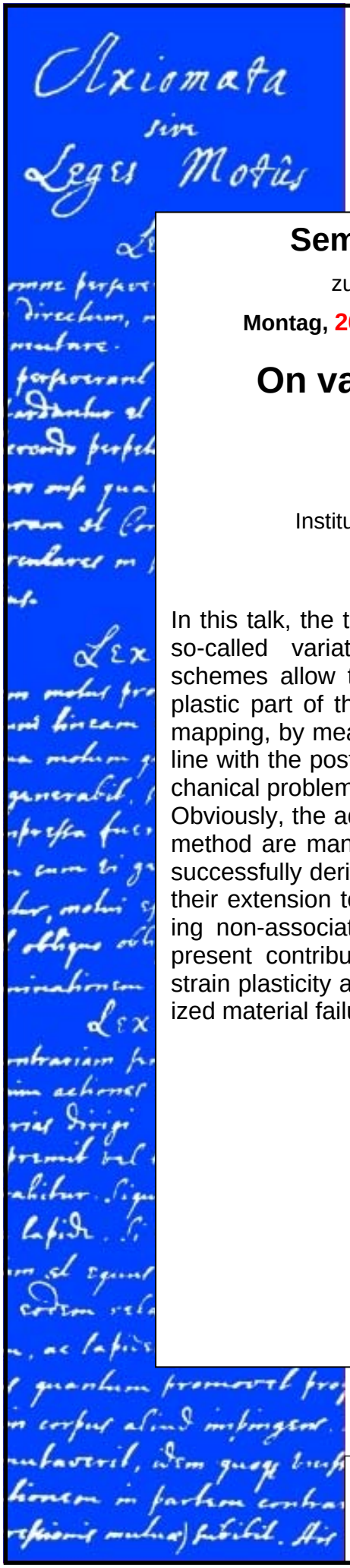

Friedrich-Alexander-Universität
Erlangen-Nürnberg

Seminar über Fragen der Mechanik

zu folgendem Vortrag wird herzlich eingeladen

Montag, 26.01.2009, 14:30 Uhr, Egerlandstr. 5, Raum 0.044

On variational constitutive updates

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In this talk, the theory, the implementation as well as the application of so-called variational constitutive updates are addressed. These schemes allow to compute the unknown state variables such as the plastic part of the deformation gradient, together with the deformation mapping, by means of fully variational principles. More precisely, and in line with the postulate of minimum potential energy, the considered mechanical problem is solely driven by energy minimization.
Obviously, the advantages resulting from such a variationally consistent method are manifold. While variational constitutive updates have been successfully derived for relatively simple fully isotropic plasticity models, their extension to more realistic constitutive laws, such as those showing non-associative evolution equations, is highly challenging. In the present contribution, two general frameworks, one suitable for finite strain plasticity and the other for the formation and propagation of localized material failure like cracks and shear bands, are discussed.

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