



## Mathematisches Kolloquium

Am Freitag, dem 05. Dezember 2014 spricht um 14 Uhr c. t. im Hörsaal IV  
der Fachrichtung Mathematik (Gebäude E24)

**Prof. Dr. Sergey Repin**  
**St. Petersburg Department of V.A. Steklov**  
**Institute of Mathematics**

über das Thema:

### **Computable bounds of distances to exact solutions of viscous flow problems based on advanced forms of the LBB condition**

*Abstract:* We discuss new localized forms of the Inf-Sup (or LBB) condition, which plays a crucial role in qualitative and quantitative analysis of mathematical models associated with viscous flow problems and other problems related to incompressible media. They imply estimates of the distance to the set of divergence free fields containing a collection of local constants associated with sub-domains instead of one global constant.

The derivation of these estimates is based upon the so-called "weak solenoidality condition", which replaces the pointwise divergence free condition. We apply these estimates to boundary value problems for viscous incompressible fluids and deduce fully computable bounds of the distance between an arbitrary vector valued function in the corresponding energy space and the exact solution. The estimates are valid for divergence free approximations and also for the approximations satisfying the incompressibility condition only approximately.

Der Gast wird von PD Dr. Darya Apushkinskaya betreut.

Alle Interessenten sind zum Vortrag herzlich eingeladen.

Kaffee und Tee ab 13.45 Uhr im Konferenzraum der Mathematik (Erdgeschoss, Raum 1.03)

**Die Dozenten der Mathematik**