



## Einladung zum Oberseminar Mathematik in den Naturwissenschaften

Julius-Maximilians-Universität Würzburg  
Lehrstuhl für Mathematik in den Naturwissenschaften

*Francesco de Anna*

University of Würzburg

### **Recent developments on the Ericksen-Leslie theory for the flow of nematic liquid crystals**

The Ericksen-Leslie system is a fundamental hydrodynamic model that describes the evolution of incompressible liquid crystal flows of nematic type. In this talk we present a recent result concerning the general Ericksen-Leslie system with a Ginzburg-Landau type approximation.

Up until recently, a fundamental problem that had remained open was the uniqueness of weak solutions. The essential mathematical difficulties of the model arise indeed from highly non-linear terms and a lack of maximum principle due to the stretching effect of the fluid on the constitutive molecules. In this talk we present a recent result which provides a positive answer to the uniqueness problem of weak solutions in a two-dimensional periodic domain.

We introduce a specific toolbox of Fourier Analysis, in order to address the mentioned result.

Ort: Mathematik Ost, 40.03.003

Zeit: Dienstag, 03.05.2022, 10:00 Uhr

You are cordially invited to this lecture.

gez. Anja Schlömerkemper