**DK Seminar**

**March 16, 2016, 14:00 - 15:30**
**Vienna University of Technology (TU): Freihaus, green area, 4th floor, SEM 101C..**

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## Zakharov system on the background of a line soliton.

**Abstract:**The (2-D) (scalar) Zakharov system has the form

$$\begin{cases} i\partial_t u + \Delta u = nu \\ \frac{1}{\lambda^2}\partial_t^2 n - \Delta n = \Delta |u|^2. \end{cases}$$

Where $(x, y, t) \in \mathbb{R}^2 \times \mathbb{R}$, $\lambda$ is a fixed real number, $u$ is a complex valued function and $n$ is a real function, with initial data $(u_0, n_0, n_1)$. The Zakharov system describe the propagation of Langmuir waves in plasma and was studied by many authors and various methods. In this talk, I represent some classical result about the Cauchy problem for the Zakharov system and, then, present our recent result on the Cauchy problem for its perturbation on the background of the line soliton [1] . One can consider it as the first step to study the transverse stability (or instability) of the line soliton.

[1]The 1-d soliton of the 1-d focusing nonlinear Schrödinger equation.