Leibniz Universität Hannover

Oberseminar Analysis und Theoretische Physik

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Strichartz estimates for Maxwell equations

Linear wave equations are solved by groups that act on L^2-based spaces. So one would not expect any gain of integrability by the flow. However, due to dispersive effects one actually obtains increased space integrability paying a price in regularity and time integrability. This behavior is encoded in Strichartz estimates, for instance. For the wave equation they are very well studied. They were crucial ingredients for significant advances in the wellposedness and stability theory for semilinear and quasilinear equations. We will review some aspects of this vast field.

For the Maxwell equations very little is known. They pose additional difficulties just because they form a 6 by 6 system. Moreover, one needs information about the charges to deal with the kernel of the curl operator. Finally, for non-isotropic materials the 'light cone' has less favorable curvature properties than for the scalar wave equation which leads to a loss of regularity in the dispersive estimates.

I will report on our recent progress for local and global in time Strichartz estimates for the Maxwell system, and also indicate the impact on the local wellposedness theory for quasilinear problems. The talk is based on joint work with Piero D'Ancona (Rome) and Robert Schippa (Karlsruhe) and on a paper by Robert Schippa alone.

Dienstag, 9.11.2021, 15:00 Uhr, Raum c311
Hauptgebäude der Leibniz Universität

Dazu laden herzlich ein:

Prof. Dr. Wolfram Bauer, Prof. Dr. Joachim Escher, Prof. Dr. Johannes Lankeit,
Prof. Dr. Elmar Schrohe, Prof. Dr. Christoph Walker