Analysseminariet

Nikolaos Bournaveas: Low regularity local solutions of the Dirac Klein-Gordon equations.

Abstract: The classical local existence theorem for nonlinear wave equations of the form $u_{tt} - \Delta u = f(u, \partial u)$ requires that the initial data $(u(0,\cdot)\ ,\ u_t(0,\cdot))$ belong to $H^s(R^n) \times H^{s-1}(R^n)$ with $s > \frac{n}{2} + 1$. The lower bound for s can be significantly improved by using the space time estimates of Strichartz and Brenner. If the nonlinear terms have a special structure, as is the case for most of the equations that arise in Mathematical Physics, this lower bound can be impoved even further by using recent estimates of Klainerman and Machedon. We shall discuss all these estimates as well as applications to the Dirac Klein-Gordon equations.

Tisdagen den 13/10, kl. 15.15 S1