Kyoto University NLPDE Seminar

July 7, 2017 16:00 - 18:15

Room 108 at Science Building #3, Kyoto University

Program

16:00-17:00	Sanghyuk Lee (Seoul National University)
	Resolvent estimates for second order differential operators
17:15-18:15	Salvador Rodriguez-Lopez (Stockholm University) Regularity properties of certain bilinear Fourier integral operators

Resolvent estimates for second order differential operators

Sanghyuk Lee (Seoul National University)

In this talk we are concerned with estimates for resolvents of second order differential operators in Euclidean spaces. Since the work due to Kenig-Ruiz-Sogge, it has been known that uniform estimate which is independent of the complex parameter holds on a range of Lebesgue spaces. A natural question is what is the optimal resolvent estimates on Lebesgues which are not contained in the uniform range. We answer this problem in certain range and discuss connections to related multiplier problems.

Regularity properties of certain bilinear Fourier integral operators

Salvador Rodriguez-Lopez (Stockholm University)

In this talk we will present some regularity properties of certain bilinear oscillatory integral operators and related Fourier integral operators on products of Lebesgue spaces. More specifically, we will establish the boundedness of operators of the type

$$T(f,g) = \iint a(x,\xi,\eta)\widehat{f}(\xi)\widehat{g}(\eta)e^{i\Phi(x,\xi,\eta)}d\xi d\eta$$

where the amplitude *a* belongs to a bilinear Hörmander-type class S^m , and the phase function $\Phi(x,\xi,\eta) = \phi_1(x,\xi) + \phi_2(x,\eta)$, with ϕ_j satisfying a suitable regularity and nondegeneracy condition. In particular, we obtain a bilinear counterpart of the theorem of A. Seeger, C. Sogge and E. Stein for linear Fourier integral operators.

We will also discuss the failure of some endpoint results, and indicate current developments.