1099-35-317 **Andrea R Nahmod*** (nahmod@math.umass.edu), Department of Mathematics, Lederle GRT, 710 N. Pleasant Street, Amherst, MA 01003. *Bilinear estimates in Fourier Lebesgue spaces for the $Q_{\mu\nu}$ null forms in 2D and applications to almost critical local well posedness for the Ward system.*

In this talk we show how to prove optimal bilinear estimates for free waves in 2D in suitable Fourier Lebesgue spaces, which are sufficient to close the gap to critical regularity left in the Sobolev scale. As a consequence we obtain optimal local well-posedness result for the 1+2 dimensional system of nonlinear wave equations (NLW) with quadratic null-form derivative nonlinearities $Q_{\mu\nu}$. The Cauchy problem for these equations is known to be ill-posed for data in the Sobolev space H^s with $s \leq 5/4$ for all the basic null-forms, except Q_0, thus leaving a gap to the critical regularity of $s_c = 1$. Using appropriate multiplicative properties of the solution spaces, and relying on bilinear estimates for the $Q_{\mu\nu}$ forms, we then prove almost critical local well-posedness for the Ward wave map problem as well. This is joint work with Viktor Grigoryan. (Received February 10, 2014)