1019-42-61 **Allan Greenleaf** and **Malabika Pramanik*** (`malabika@math.ubc.ca`), Department of Mathematics, University of British Columbia, Vancouver, BC V6T 1Z2, Canada, and **Wan Tang**. *L^2 decay estimates for oscillatory integral operators in several variables with homogeneous polynomial phases.*

Oscillatory integral operators mapping $L^2(\mathbb{R}^{n_x})$ to $L^2(\mathbb{R}^{n_z})$ play an important role in many problems in harmonic analysis and partial differential equations. Extending earlier work of Phong and Stein (in the case $n_x = n_z = 1$), we obtain optimal decay rates for the L^2 operator norm of oscillatory integral operators whose phase functions are generic homogeneous polynomials in $2 + 2$ variables. Some other higher dimensional situations are also addressed, specifically when the polynomial is of sufficiently high degree relative to $n_x + n_z$. This is joint work with Allan Greenleaf and Wan Tang. (Received August 04, 2006)