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**W. Riley Casper, F. Alberto Grunbaum and Milen Yakimov\***, Department of Mathematics, Northeastern University, Boston, MA 02115, and **Ignacio Zurrian**. *Reflective prolate-spheroidal operators and the adelic Grassmannian*.

Beginning with the work of Landau, Pollak and Slepian in the 1960s on time-band limiting, commuting pairs of integral and differential operators have played a key role in signal processing, random matrix theory, and integrable systems. Previously, such pairs were constructed by direct computations on a case-by-case basis. We will present a general approach to these problems that proves that every point of Wilson's infinite dimensional adelic Grassmannian gives rise to an integral operator that reflects a differential operator. The latter is constructed explicitly using Fourier algebras of differential operators associated to bispectral functions. A 90 degree rotation argument is used to prove that the time-band limited operators of the associated generalized Fourier transforms with kernels admit a commuting differential operator. (Received January 24, 2022)