Meeting: 1003, Atlanta, Georgia, SS 14A, AMS Special Session on D-Modules, I

1003-11-545   **Kiran S. Kedlaya*** (`kedlaya@mit.edu`), Department of Mathematics, Room 2-165, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139. *The p-adic Fourier transform on the affine line and the Weil Conjectures.*

After Deligne gave his second proof of the last of the Weil Conjectures (on the numbers of points on varieties over finite fields), Laumon found a simplification using an analogue of the Fourier transform in etale cohomology. There is also a natural Fourier transform in D-module theory, and its p-adic analogue (due to Huyghe) can be used to imitate Laumon's arguments in the context of Berthelot's rigid cohomology. We will explain concretely what this all looks like on the affine line (where Laumon's argument takes place), and sketch how one can use this setup to obtain a form of Deligne's "Weil II" theorem. (Received September 21, 2004)