1023-14-1744   **Christopher L Bremer*** (`cbremer@math.uchicago.edu`), 5734 S. University, Chicago, IL 60637.
A generalized Euler integral formula for ε-factors of irregular singular connections.

Let L be a rank r irregular singular connection on a projective curve X in characteristic 0. In recent work, Beilinson, Bloch and Esnault have shown that the determinant of the period matrix of L is the product of local ε-factors. I prove that in certain cases, these ε-factors may be calculated by the fourier transform of an equivariant $\mathcal{D}$-module defined on a subgroup of $GL_r(k((T)))$. This approach adapts the theory of non-abelian wildly ramified Gauss sums to the de Rham setting. (Received September 26, 2006)