1053-30-370　　　　**Soeren Krausshar*** (`Soeren.Krausshar@wis.kuleuven.be`), **Swanhild Bernstein** and **Svend Ebert**. *Construction of diffusion wavelets on conformally flat cylinders and tori (joint work with Swanhild Bernstein and Svend Ebert).*

Abstract:

In this talk we study the solutions to the diffusion equation on some conformally flat cylinders and on the n-torus. Using the Clifford algebra calculus with an appropriate Witt basis, the solutions can be expressed as multi-periodic eigensolutions to the parabolic Dirac operator. We study their fundamental properties, give representation formulas of all these solutions and develop some integral representation formulas. As main application, we construct well localized diffusion wavelets on this class of cylinders and tori by means of multiperiodic eigensolutions to the parabolic Dirac operator. We also present some concrete numerical simulations for the three dimensional case. (Received September 11, 2009)

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