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MICROLOCAL SHEAVES, AND THE CASE OF RATIONAL HOMOLOGY BALLS

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Abstract

It is shown by Kashiwara-Schapira (1980s) and Nadler-Zaslow (2006) that constructible sheaves on a smooth manifold correspond to exact Lagrangians in its cotangent bundle. One can generalise this by replacing constructible sheaves with microlocal sheaves, cotangent bundles with Weinstein manifolds, and smooth manifolds with the skeleta of Weinstein manifolds, which are singular Lagrangians. Therefore, homological mirror symmetry conjecture tells us that microlocal sheaves on a singular Lagrangian of this kind should correspond to coherent sheaves on a mirror algebraic variety.

In this talk, I will briefly explain these concepts and some computational tools through examples. I will look at a particular family of Weinstein manifolds which are rational homology balls, and investigate the microlocal sheaves on their skeleta.

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