GENERALIZED NEARBY CYCLES VIA LOGARITHMIC AND RELATIVE D-MODULES

Speaker:Lei Wu
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Time:Tue., Dec. 16th, 16:00-17:00

Venue:Room 405, SCMS

Abstract: Nearby cycles for D-modules along a hypersurface were introduced by Kashiwara and Malgrange by using the so-called V-filtrations and by Beilinson-Bernstein by using b-functions in 1980s, which provide a powerful tool in algebraic geometry and representation theory. In this talk, I will construct (generalized) nearby cycles for regular holonomic D-modules along F, a finite union of hypersurfaces, motivated by the method of Beilinson-Bernstein. Then I will give a logarithmic interpretation of Bernstein-Sato ideals of F by using the log structures induced from the graph embedding of F. Finally, I will explain that the relative support of the (generalized) nearby cycles along log strata are infinite union of linear subvarieties defined over Q, determined by the zeroes of the Bernstein-Sato ideals along the same strata, which generalizes a classic result of Kashiwara and Malgrange.