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Colored HOMFLY homology of knots and links

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In this talk I will present structural properties of colored HOMFLY homology of knots and links. These rich properties of the categorification of the colored HOMFLY polynomial are obtained by using various methods: physics insights, representation theory of Lie superalgebras $\mathrm{gl}(n \mid m)$, double affine Hecke algebras, etc. This in turn enables computation of colored HOMFLY homology for various classes of knots and links and consequent computation of super-A-polynomial—the deformation of the classical A-polynomial. I will also explain recent results and special additional properties for the case of links, as well as one approach for the rigorous definition of the colored HOMFLY homology for certain colors.

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