Ulrich Sheaves and Higher-Rank Brill-Noether Theory

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Ulrich sheaves, which are in a sense the “nicest” ACM sheaves, occur naturally in a wide variety of topics, ranging from Brauer groups to Boij-Soderberg theory. The question of whether a given subvariety of projective space admits an Ulrich sheaf is quite hard in general, and in the case of surfaces an affirmative answer usually solves a Brill-Noether problem for linear series on a special curve. In this talk, I will report on a result obtained jointly with Rajesh Kulkarni and Ian Shipman which shows that the existence of an Ulrich sheaf on a variety of any dimension is equivalent to the solution of a Brill-Noether problem for higher-rank vector bundles on special curves.

Tuesday, November 5
3:00 – 4:00 p.m.
Harvard (SC 507)