

Stony Brook Math Club and Graduate Student Seminar

Wednesday, March 9, Math P-131

This is the n -th of a series of meetings of the Stony Brook Math Club aimed to give undergraduate students a glimpse of actual math research and math related activities. If you are curious about and/or interested in math, do not hesitate to come.

12:50–1:45pm Marianna Csornyei, *On the Visibility of Invisible Sets*

A planar set A is called invisible if its orthogonal projection is of measure 0 in almost every direction; A is visible, if it is not invisible. We say that A is invisible from a point, if almost all lines through that point do not hit the set. P. Mattila raised the poetic question whether the set of points from which an invisible set is visible is invisible.

R.O. Davies proved in 1952 that an arbitrary measurable planar set A can be covered by lines in such a way that the set of all points covered by these lines has the same Lebesgue measure as A . We prove that the same result holds not only for Lebesgue measure, but for every reasonable measure on the plane. We show how this result may be used to answer the question of Mattila, and we characterize the sets of the plane from which an invisible set is visible.

1:45–2:15pm *Pizza social*

Marianna Csornyei is a professor at University College London and an International Math Olympiad gold medalist.

Questions? E-mail Moira Chas at moira@math.sunysb.edu or visit <http://www.math.sunysb.edu/MathClub/>