BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

STRATIFYING ON-SHELL CLUSTER VARIETIES

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April 3, 2018, 5:00 – 6:00pm

Math/Computer Science, Room 148

111 Cummington Street, Boston

Tea: 4:45pm in Room 144

Abstract: There exists a deep correspondence between a class of physically important functionscalled "on-shell functions"and certain (cluster variety) subspaces of Grassmannian manifolds, endowed with a volume form that is left invariant under cluster coordinate transformations. These are called "on-shell varieties" (which may or may not include all cluster varieties). It is easy to prove that the number of on-shell varieties is finite, from which it follows that the same is true for on-shell functions. This is powerful and surprising for physics, because these on-shell functions encode complete information about perturbative quantum field theory.

In this talk, I describe the details of this correspondence and how it is constructed and give the broad physics motivations for obtaining a more systematic understanding of on-shell cluster varieties. I outline a general, brute-force strategy for classifying these spaces; and describe the results found by applying this strategy to the case of $Gr(3, 6)$.

See `http://math.bu.edu/research/geom/seminar.html` or contact Yoosik Kim (*yoosik@bu.edu*) or Siu-Cheong Lau (*lau@math.bu.edu*) for more information.