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Midwest Dynamics and Group Actions  
**Monday, April 26, 2021, 4:00pm-5:00pm**  
**Virtual**  
*Paul Apisa (University of Michigan)*  

*In the moduli space of translation surfaces, large orbit closures are strata or loci of double covers*

Any translation surface can be presented as a collection of polygons in the plane with sides identified. By acting linearly on the polygons, we obtain an action of $GL(2,\mathbb{R})$ on moduli spaces of translation surfaces. Recent work of Eskin, Mirzakhani, and Mohammadi showed that $GL(2,\mathbb{R})$ orbit closures are locally described by linear equations on the edges of the polygons. However, which linear manifolds arise this way is mysterious.

In this talk, I will describe new joint work with Alex Wright that shows that when an orbit closure is sufficiently large it must be a whole moduli space, called a stratum in this context, or a locus defined by rotation by $\pi$ symmetry. We define "sufficiently large" in terms of rank, which is the most important numerical invariant of an orbit closure, and is an integer between 1 and the genus $g$. Our result applies when the rank is at least $1+g/2$, and so handles roughly half of the possible values of rank.

I will conclude by explaining how the ideas that appear in the proof of the previous result have connections to studying the geometry of Teichmuller space and the Lyapunov spectrum of the Kontsevich-Zorich cocycle - the cocycle whose exponents govern how cohomology classes grow along Teichmuller geodesic flow.

Zoom link: https://iu.zoom.us/j/661711533?pwd=RTFVTjMrQ1pYTCtZlzlVGVvODV2QT09  
password is 076877 if needed.

Complex Analysis, Dynamics and Geometry  
**Tuesday, April 27, 2021, 5:00pm-6:00pm**  
**Virtual**

*Malavika Mukundan (U(M))*

*Parameter space of unicritical cubic polynomials*

In the first part of this talk, we shall discuss some basic properties of the parameter space $M_d$ of unicritical degree $d$ polynomials for $d \geq 2$. We then focus on the case $d=3$, and establish a relationship between quadratic polynomials with a periodic critical point, and cubic polynomials with a periodic critical point whose kneading sequence contains only two symbols out of three. We shall deduce some properties of $M_3$ that follow directly by this relationship, and end by discussing the implications of the same and further questions that can be posed.

Arithmetic Geometry Learning  
**Thursday, April 29, 2021, 4:00pm-5:30pm**  
**East Hall**

*Emanuel Reinecke (*)*  

*The weight filtration*
Preprint Algebraic Geometry
Friday, April 30, 2021, 4:00pm-5:30pm
East Hall
Shivaprasad or Wu ()

Kollár: Higher direct images of dualizing sheaves I (part I)