<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Seminar/Event</th>
<th>Speaker/Presenter</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, April 26, 2021</td>
<td>4:00pm-5:00pm</td>
<td>Midwest Dynamics and Group Actions -- Paul Apisa (University of Michigan)</td>
<td><em>In the moduli space of translation surfaces, large orbit closures are strata or loci of double covers</em> -- Virtual</td>
<td></td>
</tr>
<tr>
<td>Tuesday, April 27, 2021</td>
<td>5:00pm-6:00pm</td>
<td>Complex Analysis, Dynamics and Geometry -- Malavika Mukundan (U(M))</td>
<td>Parameter space of unicritical cubic polynomials -- Virtual</td>
<td></td>
</tr>
<tr>
<td>Thursday, April 29, 2021</td>
<td>4:00pm-5:30pm</td>
<td>Arithmetic Geometry Learning -- Emanuel Reinecke ()</td>
<td>The weight filtration -- East Hall</td>
<td></td>
</tr>
<tr>
<td>Friday, April 30, 2021</td>
<td>4:00pm-5:30pm</td>
<td>Preprint Algebraic Geometry -- Shivaprasad or Wu ()</td>
<td>Koll’ar: Higher direct images of dualizing sheaves I (part I) -- East Hall</td>
<td></td>
</tr>
</tbody>
</table>
Abstracts for the week of April 25th, 2021 - May 1st, 2021

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,R) on moduli spaces of translation surfaces. Recent work of Eskin, Mirzakhani, and Mohammadi showed that GL(2,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 π 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 >=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 ()  
Koll'ar: Higher direct images of dualizing sheaves I (part I)