



Online ISU Algebra Seminar

Date and Time: March 17, 2022, from noon to 12:50 pm.

Speaker: Devin Akman (Washington University in St. Louis)

Title: De Rham's Theorem from the Derived Perspective

Abstract: In 1931, Georges de Rham proved the remarkable result that differential forms on a manifold tell us about its topology. In other words, calculus behaves differently on a donut than it does on a sphere! One first encounters this phenomenon in vector calculus or physics, where domains with holes can support curl-free force fields that are not conservative. I will introduce the idea of (co)homology, discuss the classical proof of de Rham's theorem, and present a modern perspective in terms of resolutions of sheaves. Along the way, we will meet derived functors, which provide a unifying perspective for many different (co)homology theories. This talk will have material accessible to students of all levels.

About Speaker: Devin Akman has a BSc from the University of Illinois Urbana-Champaign, where he majored in Mathematics and Computer Science. He is currently a PhD student in Mathematics at Washington University in St. Louis. His areas of interest are algebraic geometry and Hodge theory. Devin Akman is no stranger to our department, having taken six courses as a U-High student, even doing an undergraduate research project with Dr. Sunil Chebolu. We welcome Devin Akman back, who also gave two previous seminar talks here while an undergraduate.

Zoom Meeting Information

Join Zoom Meeting

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Meeting ID: 916 7189 1930

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