

**Seminar & Events Bulletin: Kottwitz Seminar**  
01-01-2013 to 06-30-2013

Friday, January 18, 2013

3:00pm-5:00pm    **Kottwitz Seminar** -- Ryan Reich (UM) *Multiplicity one for automorphic representations of  $GL_n$*  -- 3088 East Hall

Friday, February 01, 2013

4:00pm-6:00pm    **Kottwitz Seminar** -- Charles Stibitz (UM) *Spectra and Cohomology Theories* -- 3088 East Hall

Friday, February 08, 2013

4:00pm-6:00pm    **Kottwitz Seminar** -- Charles Stibitz (UM) *Spectra and Cohomology Theories, part 2* -- 3088 East Hall

Friday, February 15, 2013

4:00pm-6:00pm    **Kottwitz Seminar** -- Charles Stibitz (UM) *Spectra and Cohomology Theories, part 3* -- 3088 East Hall

Friday, March 01, 2013

4:00pm-6:00pm    **Kottwitz Seminar** -- Charles Stibitz (UM) *Spectra and Cohomology Theories, part 4* -- 3088 East Hall

Friday, April 05, 2013

4:00pm-6:00pm    **Kottwitz Seminar** -- Charles Stibitz (UM) *Spectra and Cohomology Theories, part 5* -- 3088 East Hall

**Seminar & Events Bulletin: Kottwitz Seminar**  
01-01-2013 to 06-30-2013

**Abstracts**

**Kottwitz Seminar**

**Friday, January 18, 2013, 3:00pm-5:00pm**

**3088 East Hall**

**Ryan Reich (UM)**

*Multiplicity one for automorphic representations of  $GL_n$*

Automorphic representations were introduced by Langlands as one of the basic objects of his Program to give a representation-theoretic basis for understanding number theory. Automorphic forms are a vast generalization of modular forms defined with reference to the ring of adeles of a number or function field, which we will introduce and describe briefly. Our goal is a structural result for the space of automorphic forms for  $GL_n$  to the effect that it is multiplicity-free; along the way we will introduce Whittaker functions as a model for automorphic representations and reduce the theorem to a similar multiplicity result for them, using the Fourier transform.

**Kottwitz Seminar**

**Friday, February 01, 2013, 4:00pm-6:00pm**

**3088 East Hall**

**Charles Stibitz (UM)**

*Spectra and Cohomology Theories*

(Please note that for the remainder of the semester, the Kottwitz Seminar will meet on Fridays, 4-6pm, unless announced otherwise.)

Our goal will be to introduce the category of (CW) spectra and explain its role in stable homotopy theory. We will look at basic examples of spectra as well as some of the constructions that can be done on spectra. We will then look at the relation of spectra to generalized homology and cohomology theories.

**Kottwitz Seminar**

**Friday, February 08, 2013, 4:00pm-6:00pm**

**3088 East Hall**

**Charles Stibitz (UM)**

*Spectra and Cohomology Theories, part 2*

In this talk we will look at the relationship between spectra and (co)homology theories. In particular we will show how to take a spectrum and produce a cohomology theory. We will then prove Brown's representability theorem which allows one to construct a spectrum from a cohomology theory. Last we will introduce the Atiyah-Hirzebruch spectral sequence and discuss its relation to this story.

**Seminar & Events Bulletin: Kottwitz Seminar**  
01-01-2013 to 06-30-2013

**Kottwitz Seminar**

**Friday, February 15, 2013, 4:00pm-6:00pm**

**3088 East Hall**

**Charles Stibitz (UM)**

*Spectra and Cohomology Theories, part 3*

**Kottwitz Seminar**

**Friday, March 01, 2013, 4:00pm-6:00pm**

**3088 East Hall**

**Charles Stibitz (UM)**

*Spectra and Cohomology Theories, part 4*

**Kottwitz Seminar**

**Friday, April 05, 2013, 4:00pm-6:00pm**

**3088 East Hall**

**Charles Stibitz (UM)**

*Spectra and Cohomology Theories, part 5*