



CENTRE FOR QUANTUM GEOMETRY OF MODULI SPACES
DEPARTMENT OF MATHEMATICS
AARHUS UNIVERSITY

Program: Triple masterclass 2-13 June 2014

Principal Bundles by Indranil Biswas (TIFR)

Monday 2 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Principal bundles, automorphism, Krull-Schmidt type theorem

11:15 - 12:00 Atiyah bundle, connections, Atiyah-Weil theorem and its generalizations

12:00 - 14:00 Lunch

14:00 - 14:45 Semistability; Nefness and semistability

14:45 - 15:15 Coffee break

15:15 - 16:00 Einstein-Hermitian connections on principal bundles

18:00 Social dinner in staff-lounge (free of charge)

Tuesday 3 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Cartan geometry (I)

11:15 - 12:00 Cartan geometry (II)

12:00 - 14:00 Lunch

14:00 - 14:45 Bundles on compact complex tori; torus bundles; Equivariant bundles on homogeneous spaces.

14:45 - 15:15 Coffee break

15:15 - 16:00 Questions



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Introduction to Algebraic Stacks by Amit Hogadi (TIFR)

Lecture 1: Functor of points

Lecture 2: Groupoids

Lecture 3: Algebraic spaces and algebraic stacks

Lecture 4: Applications

Wednesday 4 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Functor of points (I)

11:15 - 12:00 Functor of points (II)

12:00 - 14:00 Lunch

14:00 - 14:45 Groupoids (I)

14:45 - 15:15 Coffee break

15:15 - 16:00 Groupoids (II)

Thursday 5 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Algebraic spaces and algebraic stacks (I)

11:15 - 12:00 Algebraic spaces and algebraic stacks (II)

12:00 - 14:00 Lunch

14:00 - 14:45 Applications (I)

14:45 - 15:15 Coffee break

15:15 - 16:00 Applications (II)



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Deformation Theory and Moduli by Nitin Nitsure (TIFR)

Lecture 1: What are moduli problems

Lecture 2: Infinitesimal deformations

Lecture 3: Algebraization

Lecture 4: Construction of Moduli stacks

Friday 6 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 What are moduli problems (I)

11:15 - 12:00 What are moduli problems (II)

12:00 - 14:00 Lunch

14:00 - 14:45 Discussion session on lecture 1

14:45 - 15:15 Coffee break

15:15 - 16:00 Infinitesimal deformations (I)

16:00 - Refreshments in Staff-lounge

Monday 9 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Infinitesimal deformations (II)

11:15 - 12:00 Discussion session on Lecture 2

12:00 - 14:00 Lunch

14:00 - 14:45 Algebraization (I)

14:45 - 15:15 Coffee break

15:15 - 16:00 Algebraization (II)

Tuesday 10 June in in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Discussion session on Lecture 3

11:15 - 12:00 Construction of Moduli stacks (I)

12:00 - 14:00 Lunch

14:00 - 14:45 Construction of Moduli stacks (II)

14:45 - 15:15 Coffee break

15:15 - 16:15 Discussion session on Lecture 4



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Instability and tensor products by Vikraman Balaji (CMI)

Lecture 1: Narasimhan-Seshadri theory, a re-look

Lecture 2: Instability theory a la Kempf-Rousseau

Lecture 3: Bundles and Instability theory

Lecture 4: Tannaka Categories and Holonomy

Wednesday 11 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Narasimhan-Seshadri theory, a re-look (I)

11:15 - 12:00 Narasimhan-Seshadri theory, a re-look (II)

12:00 - 14:00 Lunch

14:00 - 14:45 Instability theory a la Kempf-Rousseau (I)

14:45 - 15:15 Coffee break

15:15 - 16:00 Instability theory a la Kempf-Rousseau (II)

Thursday 12 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Bundles and Instability theory (I)

11:15 - 12:00 Bundles and Instability theory (II)

12:00 - 14:00 Lunch

14:00 - 14:45 Bundles and Instability theory (III)

14:45 - 15:15 Coffee break

15:15 - 16:00 Bundles and Instability theory (IIII)

Friday 13 June in Aud. G1 (1532-116)

09:30 - 10:00 Coffee/tea

10:00 - 10:45 Tannaka Categories and Holonomy (I)

11:15 - 12:00 Tannaka Categories and Holonomy (II)

12:00 - 14:00 Lunch

14:15 - 15:15 Seminar by Vikraman Balaji: *Parabolic bundles and Bruhat-Tits theory*

15:15 - 15:45 Coffee