

STRUCTURE OF LENGTH 3 RESOLUTIONS WORKSHOP
UC SAN DIEGO AUGUST 19–23, 2019

PROGRAM

MONDAY

- 9.00–10.00 am Lecture 1 (OV)
Finite free resolutions; the Buchsbaum-Eisenbud acyclicity criterion
- 10.15–11.15 am Exercise Session 1
Basics of Macaulay 2
- 11.30–12.30 pm Lecture 2 (LC)
Multiplicative structures on resolutions; classification of resolutions of length 3
- 1.30–2.30 pm Exercise Session 2
A classification algorithm
- 3.00–6.00 pm Introduction to projects and literature

TUESDAY

- 9.00–10.00 am Lecture 3 (OV)
Gorenstein ideals of codimension 3 and Macaulay inverse systems
- 10.15–11.15 am Exercise Session 3
Macaulay inverse systems in Macaulay 2
- 11.30–12.30 pm Lecture 4 (LC)
Linkage of ideals
- 1.30–2.30 pm Exercise Session 4
Linkage in Macaulay 2
- 3.00–6.00 pm Work on projects

WEDNESDAY

- 9.00–10.00 am Lecture 5 (OV)
Finite free resolutions of homogeneous ideals
- 10.15–11.15 am Exercise Session 5
Linkage of homogeneous ideals
- 11.30–12.30 pm Lecture 6 (JW)
Generic rings; resolutions of length 2
- 1.30–2.30 pm Exercise Session 6
Representation theory
- 3.00–6.00 pm Work on projects

THURSDAY

- 9.00–10.00 am Lecture 7 (LC)
Almost complete intersections in codimension 3
- 10.15–11.15 am Exercise Session 7
Specific examples
- 11.30–12.30 pm Lecture 8 (JW)
The generic ring for the format $(1, n, n, 1)$
- 1.30–2.30 pm Exercise Session 8
Splitting formats
- 3.00–6.00 pm Work on projects

FRIDAY

- 9.00–10.00 am Lecture 9 (JW)
A family of perfect ideals of format $(1, 5, 6, 2)$
- 10.15–11.15 am Exercise Session 9
Working on examples
- 11.30–12.30 pm Lecture 10 (JW)
Problems and conjectures
- 1.30–2.30 pm Exercise Session 10
More examples
- 3.00–6.00 pm Work on projects

PROJECTS

- A *Multiplicative structures on linked resolutions*
- B *The realizability problem*
- C *The licci conjecture*
- D *Analysis of examples from geometry: Artin algebras, ideals of points, ideals of curves*
- E *Gorenstein ideals of codimension 4*
- F *Calculating Buchsbaum-Eisenbud multipliers and higher structure theorems by Macaulay*
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- G *Generic points from U_{CM} and Schubert varieties*