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Challenges in RNA Structural Modeling and Design

Dates: June 26-30, 2018

Location: Telluride Intermediate School,
[725 W. Colorado Avenue, Telluride, CO](#)

Organizers: Tamar Schlick: schlick@nyu.edu (917-592-9979)
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Workshop Program

NOTE: All talks are 30min + 10min discussion

~~~~~ Tuesday, June 26 ~~~~~

8:30 - 9:00 Breakfast at TSRC

Session I: RNA Modeling and Dynamics at Different Scales  
Chair: Tamar Schlick

9:00 - 9:10 Welcome and introduction

9:10 - 9:40 François Major: Modeling RNA structure and dynamics  
9:40 - 9:50 Discussion

9:50 - 10:20 Shi-Jie Chen: Coarse-grained modeling of RNA folding  
10:20 - 10:30 Discussion

10:30 - 11:00 Coffee break

11:00 - 11:30 Petr Sulc: Coarse-grained modelling of RNA

11:30 - 11:40 Discussion

11:40 - 12:20 Giovanni Bussi: Modeling RNA structural dynamics using  
molecular simulations and experimental data

12:20 - 12:30 Discussion

12:30 - 1:00 Open Discussion (meeting goals: working group, etc.)

Lunch on your own, free afternoon

3:30 - 5:30 Group Hike: Bear Creek Trail  
meet in front of Telluride public library

6:30 Town Talk: Engines Through the Ages  
Sir Fraser Stoddart, 2016 Nobel Laureate, Northwestern University

Telluride Conference Center in Mountain Lodge

~~~~~ Wednesday, June 27 ~~~~~

8:30 - 9:00 Breakfast at TSRC

Free time (hiking, water rafting, working...)

Session II: Riboswitches and Beyond
Chair: Anna Pyle

3:00 - 3:30 David Lilley: New riboswitch stories

3:30 - 3:40 Discussion

3:40 - 4:10 Karissa Sanbonmatsu: Free energy landscapes of riboswitches:
cooperation between magnesium ions and ligands

4:10 - 4:20 Discussion

4:20 - 4:35 Afternoon Break

4:35 - 4:50 Sri Somarowthu: Challenges in structural characterization of lncRNAs

4:50 - 4:55 Discussion

4:55 - 5:25 Guilia Palermo: Unraveling the mechanistic function of gene
regulation via computational methods

5:25 - 5:30 Discussion

5:30 - 6:00 Loren Williams: The History of Biopolymers is Frozen in the Ribosome

6:00 - 6:10 Discussion

6:15 - Picnic in Tent outside the Telluride Intermediate School

Friends and family welcome!

~~~~~ Thursday, June 28 ~~~~~

8:30 - 9:00 Breakfast at TSRC

Session III: From 2D Modeling to Design

Chair: David Lilley

9:00 - 9:30 Christine Heitsch: Predicting RNA consensus stems through  
unsupervised clustering of unaligned sequences

9:30 - 9:40 Discussion

9:40 - 10:20 Sharon Aviran: Automated recognition of regulatory RNA elements by  
their structural data signatures

10:20 - 10:30 Discussion

10:30 - 11:00 Coffee Break

11:00 - 11:30 Tamar Schlick: A computational pipeline for RNA design

11:30 - 11:40 Discussion

11:40 - 12:10 Anna Pyle: 12:10 - 12:20 Discussion

Lunch on your own and free time

Session IV: Defining the 2D Structures of RNAs and their Complexes

Chair: Christine Heitsch

3:15 - 3:45 Donovan Chin: RNA-Targeted Small Molecules -- A Drug  
Discovery Perspective

3:45 - 3:55 Discussion

3:55 - 4:25 Christina Bergonzo: Defining the solution state structure of  
nucleic acids

4:25 - 4:35 Discussion

4:35 - 4:50 Afternoon Break

4:50 - 5:20 Dave Matthews: RNA Secondary Structure Prediction: Parameters  
and Consensus Structures

5:20 - 5:30 Discussion

Session V: Perspectives

5:45 - 6:30 Open discussion:  
Open challenges  
Working group?

7:00 - Group Pizza Dinner?

~~~~~ Friday, June 29 ~~~~~

8:30 - 9:00 Breakfast at TSRC

9:15 discussion or group hike

~~~~~ Saturday, June 30 ~~~~~

8:00 - 9:00 Breakfast

Departure