

## **Program of the 2023 Telluride Workshop on Chromatin Structure and Dynamics**

Organizers: Bin Zhang & Alexandre Morozov  
TSRC Hosts: Cindy Fusting (970) 708-5069; Mark Kozak, (970) 708-4426  
Location: Telluride Intermediate School, 721 West Colorado Ave Telluride CO 81435  
Time zone: The schedule is based on Colorado time; 2 hrs behind New York time; 14 hrs behind Beijing time; 8 hrs behind Sweden time

### **June 5-9, 2023**

Talk: 35 min talk + 10 min questions/discussions; questions are encouraged during talks

### **Sunday, June 4, 2023**

5:00-6:30 pm Meet & Greet  
Location: The Liberty (**121 South Fir St**, next to Baked in Telluride)  
(Just come and join. If you wonder how to get there, just text Alex: 917-446-9301)

## Monday, June 5, 2023

- 7:30-8:45 am Breakfast at TSRC (served on-site)
- 8:45-9:00 am Welcome and Opening Remarks (TSRC staff)

### Session I

Moderator: Bin Zhang

- 9:00-9:45 am Imaging multi-loop interactions in chromatin folding and gene regulation  
**Alistair Boettiger**
- 9:45-10:30 am Detection and manipulation of long-range chromosomal interactions  
**Lu Bai**
- 15 min break
- 10:45-11:30 am Loop-extrusion and phase separation in chromatin folding  
**Mario Nicodemi (VIRTUAL)**
- Lunch on your own

### Session II

Moderator: Bin Zhang

- 1:00-1:45 pm Sensing self-assembly in crowded solutions.  
**Arnold Boersma (Joint with the Macromolecular Crowding workshop)**
- 1:45-2:30 pm What phase(s) of matter is the chromosome — and why should the cell care?  
**Olga Dudko**
- 15 min break
- 2:45-3:30 pm Extreme crowding: What happens to proteins when water leaves the cell?  
**Shahar Sukenik (Joint with the Macromolecular Crowding workshop)**

3:30-4:15 pm

**TBD**  
**Alexandra Zidovska**

Afternoon hike/free time (we will discuss logistics)

**Tuesday June 6, 2023**

8:00-9:00 am Breakfast at TSRC (served on-site)

**Session I**

Moderator: Alexandre Morozov

9:00-9:45 am Loop extrusion, chromatin crosslinking, and the geometry, topology and mechanics of chromosomes and nuclei  
**John Marko**

9:45-10:30 am Gene regulation by 3D genome topology in single cells  
**James Liu**

15 min break

10:45-11:30 am Thermodynamics of chromosome organization  
**Bin Zhang**

Lunch on your own

**Session II**

Moderator: Alexandre Morozov

1:00-1:45 pm On the role of polymerases in regulating the 4D Genome  
**Daniel Jost**

Afternoon hike/free time (we will discuss logistics)

6:30-7:30 pm **Town Talk** at the Telluride Conference Center in Mountain Village  
(doors open at 6:00 pm)

## Wednesday June 7, 2023

8:00-9:00 am Breakfast at TSRC (served on-site)

### Session I

Moderator: Lu Bai

9:00-9:45 am An analysis of chromatin structure change in carcinogenesis  
**Yi Qin Gao (VIRTUAL)**

9:45-10:30 am New insights into nuclear genome organization from TSA-seq plus microscopy: 3 stories (and a funeral?)  
**Andy Belmont**

15 min break

10:45-11:30 am Simulating genome folding: nucleosome resolution MC, BD, and gene reconstruction methods and applications  
**Tamar Schlick (VIRTUAL)**

11:30-12:15 am Nucleosome positioning: physics or biology?  
**Alexandre Morozov**

Lunch on your own

### Session II

Moderator:  
Alexandra Zidovska

1:00-1:45 pm 3D ultrastructure of the nucleus  
**Michael Hendzel**

1:45-2:30 pm TBD  
**Rosana Collarpado (VIRTUAL)**

15 min break

2:45-3:30 pm

Chromatin organization and behavior in living human cells revealed by single-nucleosome imaging/analysis

**Kazuhiro Maeshima**

3:30-3:45 pm

**Group Photo**

Free time

5:30 – 8:00 pm

Telluride Science picnic (held in the tent outside the Telluride Intermediate School; free and open to family and friends of Telluride Science participants)

**Thursday June 8, 2023**

8:00-9:00 am

Breakfast at TSRC (served on-site)

**Session I**

Moderator: Kazuhiro Maeshima

9:00-9:45 am

Living chromatin: a quantitative framework to characterize the coupling between 3D organisation and epigenome regulation

**Cedric Vaillant**

15 min break

10:00-10:45 am

Genomics of Nucleosome Positioning

**Benjamin Audit**

10:45-11:30 am

How do forces from the cell's environment affect chromatin organization?

**Vivek Shenoy**

6:30 – 8:30 pm **Workshop**  
**dinner** (TBD)

**Friday June 9, 2023**

8:00-9:00 am Breakfast at TSRC (served on-site)

9:00-10:00 am Informal gathering with directed discussion based on feedback during the meeting

Morning/afternoon hike (we will discuss logistics)

**PLEASE NOTE:**

These workshops are unlike regular seminars. That is, questions throughout the talk, including discussion points, are welcomed and encouraged. Speakers are therefore encouraged to prepare a talk in modules with the most important module presented first in case we do not get to other modules based on the frequency of questions.

It is also good to have slides inviting discussion points rather than be expected to cover the amount of material normally covered in a colloquium while uninterrupted.

We also echo the following message Prof. Steve Berry (Emeritus Professor, Univ of Chicago, deceased 2020, founder of TSRC) left with us.

"This Telluride workshop will be different from a traditional conference, but very much in the spirit established for Telluride. This workshop is aimed at exploring the new, exciting, open questions, by stirring people working in different disciplines and different subjects and fields to begin new collaborations. This is the objective, rather than solely to learn about all the wonderful things the participants have already done."

**Additional organizational notes:**

Telluride's altitude is 8,750 ft (2667 m) and the oxygen level may be low as compared to where you live. Make sure to drink plenty of water to avoid altitude-related headaches and bring warm clothing for potentially chilly evenings.