Welcome to the Fifth Annual GMT Community Science Meeting

Observers, modelers, and theorists from around the world will gather to discuss the Chemical Evolution of the Universe across the entire sweep of cosmic history, from nearby metal-poor stars to the earliest, most distant galaxies, with an eye toward the progress that will be enabled by extremely large telescopes. The meeting program will encourage workshop-style discussion at a beautiful retreat in the Hudson Valley.

Sponsored by the GMTO Corporation
SCIENTIFIC ORGANIZING COMMITTEE

Lisa Kewley
Australian National University (co-chair)

Mike Gladders
University of Chicago (co-chair)

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GENERAL INFO
All presentations and posters will be in the Mary Duke Ballroom. Breakfast is available for purchase at the Winter Palace. Snacks, coffee, and tea will be available during the meeting in the Mary Duke Ballroom. Photos taken at the meeting will be available at www.gmtconference.org. Please use #GMT17 to share your experience on social media.

Sunday
7:00 – 10:00 pm Welcome Reception & Registration (King Mansion – King House Terrace)
Food, beer and wine will be provided

Monday  COSMIC DAWN
8:00 – 8:15 am Logistics
8:15 – 8:45 am Rebecca Bernstein
An Introduction to GMT and its First Generation Instruments

Session 1: First Stars
Session Chair: Casey Papovich
8:45 – 9:10 am Anna Frebel (Invited)
(TBD)
9:10 – 9:35 am Else Starkenberg (Invited)
Mining the Most Pristine Stars in the Galaxy
9:35 – 10:00 am David Yong (Invited)
First Stars: Progress and Prospects
10:00 – 10:15 am Evan Scannapieco
Accounting for Subgrid Mixing to Predict How the GMT Can Best Constrain the Properties of Pop III Stars
10:15 – 10:30 am Jinmi Yoon
Lifting the Veil on Ultra Metal-Poor Stars in the Outermost Halo
10:30 – 10:50 am Coffee & Poster Session (Mary Duke Ballroom)

Session 2A: First Galaxies
Session Chair: Rebecca Bowler
10:50 – 11:15 am Eduardo Banados Torres (Invited)
The chemical evolution of the Universe: a quasar perspective
11:15 – 11:40 am Steven Finkelstein (Invited)
Probing Galaxy Evolution and Reionization with GMT
11:40 – 11:55 am Intae Jung
Constraining the End of Reionization with Deep Lyman-alpha Spectroscopy
11:55 – 12:05 pm Rapid Poster Talks 1
12:00 – 1:30 pm Lunch Provided (Winter Palace)
1:30 – 3:00 pm Free Time
### MEETING AGENDA

**Monday**

**Session 2B: First Galaxies (cont.)**  
Session Chair: Mark Vogelsberger

- **3:00 – 3:25 pm**  
  **Tom Abel (Invited)**  
  Signatures of Formation in the Milky Way’s Bulge and Disk

- **3:25 – 3:50 pm**  
  **Rebecca Bowler (Invited)**  
  Unveiling the Nature of Bright Galaxies at High-redshift

- **3:50 – 4:05 pm**  
  **Eli Visbal**  
  The Transition from Pop III to Pop II Star Formation in the High-redshift Universe

- **4:05 – 4:20 pm**  
  **Livia Pallini**  
  Probing the Chemical Composition of First Galaxies Through [CII], [OIII], and CO Emission

- **4:20 – 4:50 pm**  
  **Coffee & Poster Session (Mary Duke Ballroom)**

**Session 3: DLAs**  
Session Chair: Gwen Rudie

- **4:50 – 5:15 pm**  
  **Lise Christensen (Invited)**  
  Metals in High-redshift Galaxies in Emission and Absorption

- **5:15 – 5:40 pm**  
  **Ryan Cooke (Invited)**  
  GMT and the Genesis of the First Elements

- **5:40 – 5:55 pm**  
  **Varsha Kulkarni**  
  Determining the Cosmic Evolution of the Chemical Elements is Fundamental to Understanding Galaxy Evolution

- **6:00 – 9:00 pm**  
  **Dinner Provided (Winter Palace)**

**Tuesday**

**COSMIC NOON**

**Session 4: CGM/IGM**  
Session Chair: Hsiao-Wen Chen

- **8:00 – 8:25 am**  
  **Gwen Rudie (Invited)**  
  The Circumgalactic and Interstellar Medium of High-Redshift Galaxies

- **8:25 – 8:50 am**  
  **Sean Johnson (Invited)**  
  (TBD)

- **8:50 – 9:05 am**  
  **Ting-Wen Lan**  
  Chemical evolution of the circumgalactic medium

- **9:05 – 9:20 am**  
  **Tim Heckman**  
  Probing the CGM with COS Using Background QSOs

- **9:20 – 9:30 am**  
  **Rapid Poster Talks 2**

- **9:30 – 10:00 am**  
  **Coffee & Poster Session (Mary Duke Ballroom)**
Tuesday

**Session 5A: Galaxies**  
Session Chair: Molly Peeples

10:00 – 10:25 am  **Paul Torrey (Invited)**  
Insights into the Mass-Metallicity Relation from Illustris and IllustrisTNG

10:25 – 10:50 am  **Joop Schaye (Invited)**  
(TBD)

10:50 – 11:15 am  **Mark Vogelsberger (Invited)**  
IllustrisTNG: First Results and the Metal Content of the ICM

11:15 – 11:30 am  **Anshu Gupta**  
Prediction of Metallicity Signatures in the Pre-processing of Galaxies During Cluster Formation Using IllustrisTNG

11:30 – 11:45 am  **J.K. Barrera-Ballesteros**  
Galaxy Chemical Evolution in the Era of IFU Surveys

11:45 – 12:00 pm  **Stephanie Juneau**  
Evolving ISM in Galaxies Through Cosmic Time: Gas Supply for Stars and Black Holes

12:00 – 1:30 pm  **Lunch Provided (Winter Palace)**

1:30 – 2:30 pm  Free Time

**Session 5B: Galaxies (cont.)**  
Session Chair: Mike Gladders

2:30 – 2:55 pm  **Jane Rigby (Invited)**  
What Lensed Galaxies Tell Us About How Galaxies Evolve: Outflows, Nebular Gas, and Hot Stars

2:55 – 3:20 pm  **Fuyan Bian (Invited)**  
Local Analogs of High-redshift Galaxies: ISM Conditions and Metallicities in High-z Galaxies

3:20 – 3:35 pm  **Peter Senchyna**  
Metal-poor dwarf galaxies as a window on the reionization era

3:35 – 3:50 pm  **Ayan Acharyya**  
Probing ISM Conditions at Cosmic Noon with Rest-frame UV and Optical Diagnostics

3:50 – 4:00 pm  **Rapid Poster Talks 3**

4:00 – 4:30 pm  **Coffee & Poster Session (Mary Duke Ballroom)**

**Session 5C: Galaxies (cont.)**  
Session Chair: Jane Rigby

4:30 – 4:55 pm  **Jenny Greene (Invited)**  
(TBD)

4:55 – 5:20 pm  **Harus Zahid (Invited)**  
The Chemical Evolution of Star-Forming Galaxies

5:20 – 5:35 pm  **Matthew Colless**  
Stellar populations and dynamics from resolved spectroscopy of galaxies

5:35 – 5:50 pm  **Guillermo Blanc**  
A Characteristic Transition Mass Scale in the Gas Phase Mass-Metallicity Relation of Local Star Forming Galaxies

6:00 – 9:00 pm  **Banquet Dinner (West Terrace)**
Wednesday  **LESSONS FROM THE LOCAL UNIVERSE**

**Session 6A: The Local Universe**  
Session Chair: Josh Simon

8:00 – 8:25 am  **Myoungwon Jeon (Invited)**  
Connecting the First Galaxies with Local Dwarfs: Chemical Signatures of Population III Stars

8:25 – 8:50 am  **Danielle Berg (Invited)**  
Abundances of Dwarf Galaxies from UV and Optical Emission Lines

8:50 – 9:15 am  **Melissa Ness (Invited)**  
Signatures of Formation in the Milky Way’s Bulge and Disk

9:15 – 9:30 am  **Natalie Price-Jones**  
Constraining Milky Way Evolution by Finding Stellar Clusters in Chemical Space

9:30 – 9:45 am  **Kevin Schlaufman**  
The Most Metal-poor Stars in the Large Magellanic Cloud

9:45 – 9:55 am  **Rapid Poster Talks 4**

9:55 – 10:30 am  **Coffee & Poster Session (Mary Duke Ballroom)**

**Session 6B: The Local Universe (cont.)**  
Session Chair: Anna Frebel

10:30 – 10:55 am  **Julia Roman-Duval (Invited)**  
Metal and Dust Abundances in the Nearby Universe

10:55 – 11:20 am  **Coral Wheeler (Invited)**  
It’s all small stuff: simulating dwarf galaxies at the high-resolution limit

11:20 – 11:45 am  **Jorge Melendez (Invited)**  
High precision abundances and chemical tagging

11:45 – 12:00 pm  **Asa Skuladottir**  
The chemical connection between Damped Lyman-alpha systems and dwarf galaxies

12:00 – 12:15 pm  **Ivanna Escala**  
The Impact of Turbulent Metal Diffusion on the Chemical Evolution of Local Group Dwarf Galaxies

12:15 – 12:30 pm  **Fan Liu**  
Are open clusters chemically homogeneous?

12:30 – 12:45 pm  **Daniel Q Nagasawa**  
Chemical Abundance Measurements of Ultra-Faint Dwarf Galaxies Discovered by the Dark Energy Survey

12:45 – 1:15 pm  **Casey Papovich**  
Summary: Lessons Learned and Future Directions

12:00 pm  **Box Lunch Provided**
POSTER PRESENTATIONS

**Jullian Santos**  
The Cosmic Dust evolution at High-z

**Doori Han**  
Chemo-Kinematic Properties Of The Galactic Disk With Segue G And K Dwarf: Constraint Of Formation Of The Milky Way Disk

**Jose Schiappacasse Ulloa**  
Chemical Analysis of the Intermediate-age Open Cluster IC166 Using APOGEE

**Md Kamrul Hasan**  
Imaging Technique for Noninvasive Hemoglobin Measurements

**Alexander Ji**  
Chemical Evolution in the Faintest Dwarf Galaxies

**María José Rain**  
Chemical Evolution of the Metal Poor Globular Cluster NGC 6809

**Andrew Emerick**  
Simulations of Feedback and Chemical Evolution in Dwarf Galaxies with Individual Stars

**Mengtao Tang**  
Stellar Populations and Metallicities of Extreme Optical Line Emitting Galaxies

**Jose Gregorio Fernandez-Trincado**  
APOGEE Chemical Abundances of Field Stars Possibly Born in Globular Clusters

**Vicente Estrada-Carpenter**  
Mass-Metallicity and Age-Redshift Relations for Massive Quiescent Galaxies at $z<1.3$ using HST Grism Spectroscopy

**Amber Roberts**  
C IV and Si IV Absorption in the Circumgalactic Medium of $2 < z < 3$ Galaxies

**Martin Schlecker**  
A Highly Irradiated Transiting Hot Saturn from the K2 Mission

**Vinicius Placco**  
A Monte Carlo Approach to find the Progenitors of Ultra Metal-poor Stars

**Prerak Chapagain**  
Hoverboards: Focal Plane Positioning Robots that can be used in GMT

**Marja Seidel**  
Establishing the Formation Red-shift of the First Dynamically Cold Galaxy Discs

**Shingo Hirano**  

**Yumi Choi**  
Stellar Overdensity Structures in the Southern Disk of the Large Magellanic Cloud

**Mike Gladders**  
Chemical Dissection of Strongly Lensed Galaxies in the GMT Era
PARTICIPANTS

Tom Abel, KIPAC/Stanford University
Ayan Acharyya, Australian National University
Susmitha Rani Antony, Indian Institute of Astrophysics
Eduardo Banados, Carnegie Observatories
Jorge Barrera Ballesteros, Johns Hopkins University
Danielle Berg, University of Wisconsin–Milwaukee
Rebecca Bernstein, GMTO & Carnegie Observatories
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FIFTH ANNUAL GMT COMMUNITY SCIENCE MEETING

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