High Energy Phenomena

1) Fueling the Galactic center super massive black hole
   • PI: Sergio Martin
   • Co-I’s: Morris (UCLA), Juergen Ott (NRAO), Ray Blundell, Jun-Hui Zhao, Paul Ho, R. Guesten (MPI-Bonn), M. Requena (MPI-Bonn), Steven Longmore (ESO), S. Leon (ALMA), J. Martin

2) The First Gamma-Ray Burst Detected by ALMA: Direct Implications for the Explosions and Progenitors
   • PI: Berger
   • Co-I’s: Zauderer, Laskar

Low Mass Star Formation

3) The earliest stages of star and planet formation
   • PI: Paola Caselli
   • Co-I’s: Mario Tafalla, Malcolm Walmsley, Jaime Pineda, Padavani, Tyler Bourke, Eric Keto

4) Using the first interferometer H2D+ observations to constrain clustered star-forming core structure
   • PI: Friesen
   • Co-I: Tyler Bourke

5) The Formation and Evolution of the Proto-Binary System BHR 71
   • PI: Tobin
   • Co-I: Tyler Bourke

6) Outflow, Rotation, and Fragmentation in a Binary Class 0 Protostar and Candidate First Hydrostatic Core
   • PI: X. Chen
   • Co-I’s: Tyler Bourke, Qizhou Zhang

7) Probing the SiO emission in the BHR 71 bipolar outflow with ALMA
   • PI: Gusdorf
   • Co-I: Tyler Bourke

8) The structure of the BHR 71 molecular outflow
   • PI: Gueth
   • Co-I: Tyler Bourke
9) **ALMA Observations of the First Low-Mass Isolated Proto-Brown Dwarf**;
   • PI: Eales
   • Co-I: Shane Bussmann

10) **Outflow, Rotation, and Fragmentation in a Binary Class 0 Protostar and Candidate First Core System**
    • PI: Xuepeng Chen
    • Co-I: Qizhou Zhang

11) **Rotation and Proper Motion of Protostellar Jets**
    • PI: Chin-Fei Lee
    • Co-I: Qizhou Zhang

12) **Testing the Pulsating Protostellar Jet Paradigm with ALMA**
    • PI: Yu-Nung Su
    • Co-I: Qizhou Zhang

13) **Identification of the Keplerian-Rotating Disk around the Protobinary System of L1551 NE**
    • PI: Shigehisa Takakuwa
    • Co-I: Nimesh Patel

14) **Core v. Outflow**
    • PI: Alyssa Goodman
    • Co-I's: Hector Arce (Yale), Jaime Pineda (Manchester), Claudia Cyganowski, Michelle Borkin (Harvard), Christopher Beaumont (Hawaii), Stella Offner (CfA), Edwin Ladd (Bucknell)

15) **Revealing the kinematics of the soft X-rays component detected toward the high-velocity jet in DG Tau**
    • PI: Hans Guenther
    • Co-I: Izaskun Jimenez-Serra

16) **The magnetic precursor of C-shocks: Observing the high-J lines of HCO+ towards L1448-mm**
    • PI: Julia Roberts
    • Co-I: Izaskun Jimenez-Serra

**High Mass Star Formation**

17) **Low Mass Cores in Massive (Proto)clusters: Testing Models of Massive Star Formation**
    • PI: Claudia Cyganowski
    • Co-I’s: Crystal Brogan (NRAO), Todd Hunter (NRAO), Thomas Robitaille
18) 450 Micron Imaging of the Massive Protocluster NGC6334I
   • PI: Crystal Brogan
   • Co-I's: Todd Hunter (NRAO), Dariusz Lis (Caltech), Peter Schilke (Cologne), Claudia Cyganowski, Remy Indebetouw (UVa), Martin Emprechtinger (Caltech), Anika Schmiedeke (Cologne)

19) Gauging the Future Growth of an Isolated Massive Protostar
   • PI: Todd Hunter
   • Co-I's: Claudia Cyganowski, Crystal Brogan (NRAO)

20) Looking for the "weeds" of the Galaxy: Where are the low-mass stars in massive star-forming regions?
   • PI: Patricio Sanhueza (BU)
   • Co-I's: James Jackson (BU), Jonathan Foster (BU), Claudia Cyganowski

21) High Resolution Mapping of the Keystone Massive Young Stellar Object
   • PI: Melvin Hoare
   • Co-I's: Roberto Galvan-Madrid, Qizhou Zhang, Eric Keto

22) The disk around the massive protostar powering the magnetized HH80-81jet
   • PI: Josep Girart
   • Co-I's: Roberto Galvan-Madrid, Izaskun Jimenez-Serra

23) Widespread SiO toward IRDC G035.39-00.33: Shock-induced Formation of Molecular Cloud Filaments?
   • PI: Izaskun Jimenez-Serra

24) Unveiling the kinematics of photoevaporating winds toward sgB[e] stars
   • PI: Alejandro Baez Rubio
   • Co-I: Izaskun Jimenez-Serra

25) Witnessing cloud core and star formation in a filamentary Infrared Dark Cloud
   • PI: Jonathan Henshaw
   • Co-I: Izaskun Jimenez-Serra

26) Ionized Winds in High-mass Star Forming Regions: Masering Effects in Hydrogen Radio Recombination Lines
   • PI: Jesus Martin-Pintado
   • Co-I: Izaskun Jimenez-Serra
27) First study on the individual components of NGC 2024 FIR 5: Revealing the Evolutionary State of Sources 5A and 5B
   • PI: Filipe Alves
   • Co-I: Qizhou Zhang

28) Unveiling the fragmentation process in Infrared Dark Clouds
   • PI: Gemma Busquet
   • Co-I: Qizhou Zhang

29) Delineating the Molecular Accretion Flow around the Forming O Protostar, G240.31+0.07
   • PI: Vivien Chen
   • Co-I: Qizhou Zhang

30) Characterizing Fragmentation in Protocluster Clumps
   • PI: Satoko Takahashi
   • Co-I: Qizhou Zhang

31) How to make massive protostellar cores?
   • PI: Qizhou Zhang

   • PI: Gary Melnick
   • Co-I: Nimesh Patel

33) Controversial Evolutionary Stage of the Star Forming Region G357.96-0.16
   • PI: Tui Britton
   • Co-I: Nimesh Patel

34) Peering to the Heart of Massive Star Birth
   • PI: Yichen Zhang
   • Co-I: Kaitlin Kratter

35) Towards a Comprehensive View of the Closest High-Mass Star Forming Region
   • PI: C. Goddi
   • Co-I’s: E. Humphreys, L. Greenhill, L. Matthews, J. Bally, J. Tan

36) Excited methanol on kilo-AU scales in early high-mass star formation
   • PI: Huib Jan van Langevelde
   • Co-I’s: Anna Bartkiewicz; Karl Torstensson; Wouter Vlemmings; Floris van der Tak; Gabriele Surcis; Friedrich Wyrowski; Marian Szymczak; Karl Menten
Proto-planetary Disks

37) The V4046 Sgr Disk: A Benchmark for Planetesimal Formation
   • PI: Sean Andrews
   • Co-I’s: Katherine Rosenfeld, David Wilner, Karin Oberg, Charlie Qi, Til Birnstiel, Meredith Hughes, Joel Kastner, Ewine van Dishoeck, David Rodriguez

38) Imaging the Birth Ring of the AU Mic Debris Disk
   • PI: David Wilner
   • Co-I’s: Sean Andrews, Brenda Matthews, Meredith Hughes, James Graham, Eugene Chiang, Grant Kennedy, Bruce Sibthorpe, Mark Booth

39) High Resolution Spatial-Kinematic Structures of the TW Hya Disk
   • PI: Shin-Yi Lin
   • Co-I’s: Sean Andrews, Paul Ho, Charlie Qi, David Wilner, Meredith Hughes

40) The Effect of Extreme Environment on Protoplanetary Disks in Orion
   • PI: Rita Mann
   • Co-I’s: Sean Andrews, Doug Johnstone, John Bally, Jonathan Williams, Meredith Hughes, Luca Ricci

41) Imaging the Gaseous Disk Orbiting the Nearby, "Old" T Tauri Star MP Mus
   • PI: Joel Kastner
   • Co-I’s: Sean Andrews, David Wilner, Karin Oberg, Pierre Hily-Blant, Meredith Hughes, Charlie Qi, Giuseppe Sacco, Ben Zuckerman, David Rodriguez

42) Dynamics of a Multiple-Planet System: Spatially Resolving the Debris Disk Around HR 8799
   • PI: Meredith Hughes
   • Co-I’s: Sean Andrews, David Wilner, Kate Su, John Carpenter, Ruth Murray-Clay, Eugene Chiang, Antonio Hales

43) An ALMA Investigation of the Environment Around Young Planetary-Mass Objects
   • PI: Luca Ricci,
   • Co-I’s: Sean Andrews, Leonardo Testi, Ilaria Pascucci, David Wilner, Laszlo Szucs, Daniel Apai
44) *Examining the Effects of the T Cha Planet on Its Birthsite Transition Disk*
   • PI: Joanna Brown
   • Co-I's: Sean Andrews, David Wilner, Ewine van Dishoeck, Catherine Espaillat, Karin Oberg

45) *Revealing the Structure and Kinematics of a Protoplanetary Disk at Dust Sedimentation Phase by Imaging Molecular Line Emissions*
   • PI: Takashi Tsukagoshi
   • Co-I's: Sean Andrews, David Wilner, Ryohei Kawabe, Masao Saito

46) *Disk Masses and Lifetimes in Rich Clusters*
   • PI: Rita Mann
   • Co-I's: Sean Andrews, James Di Francesco, John Carpenter, Josh Eisner, Jonathan Williams

47) *Imaging Organic Molecules in Protoplanetary Disks*
   • PI: Karin Oberg
   • Co-I's: Sean Andrews, Charlie Qi, Ted Bergin, Ilaria Pascucci, Geoff Blake, Michiel Hogerheijde, David Wilner, Christian Brinch, Joel Kastner, Joanna Brown, Catherine Espaillat

48) *Molecular Gas in Debris Disks: Resolving the Disk around 49 Ceti*
   • PI: Meredith Hughes
   • Co-I's: Sean Andrews, David Wilner, Inga Kamp, Aki Roberge, Agnes Kospal, Joel Kastner, Peter Abraham, Mor Attila, Csaba Kiss

49) *Constraining Planet Formation in Southern Star-Forming Laboratories*
   • PI: Catherine Espaillat
   • Co-I's: Sean Andrews, Zhaohuan Zhu, David Wilner, Karin Oberg, Joanna Brown, Charlie Qi

50) *Resolving FU Ori*
   • PI: Stuart Corder
   • Co-I's: Sean Andrews, Vincent Pietu, Josh Eisner, Bill Dent, Antonio Hales

51) *Searching for H2D+ in the Disk of TW Hya*
   • PI: Charlie Qi
   • Co-I's: Sean Andrews, Karin Oberg, David Wilner, Ted Bergin, Geoff Blake, Paola D'Alessio, Ewine van Dishoeck, Michiel Hogerheijde

52) *Searching for an Extrasolar Heliopause*
   • PI: Ilse Cleeves
   • Co-I's: Edwin Bergin; Karin Oberg; Lee Hartmann; Nuria Calvet; Tom Bethell
53) Life in the Suburbs: What is Happening in the Outer Regions of the Protoplanetary Disk around IM Lup?
   - PI: Michiel Hogerheijde
   - Co-I's: Christian Brinch; Cornelis Dullemond; Alanna Hughes; Karin Oberg; Olja Panic; Chunhua Qi; Ruud Visser; David Wilner; Karl Menten; Karin Oberg

54) Imaging the Gaseous Disk Orbiting the Nearby, "Old" T Tauri Star MP Mus
   - PI: J. Kastner,
   - Co-I's: D. Wilner, K. Oberg, P. Hily-Blant, M. Hughes, C. Qi, G. Sacco, B. Zuckerman, D. Rodriguez

Solar System

55) Sulfur and water mapping in the mesosphere of Venus
   - PI: T. Encrenaz
   - Co-I: Arielle Moullet

56) Probing the vertical structure of Saturn's storm with ALMA
   - PI: T. Cavalie
   - Co-I: Arielle Moullet

57) PACE: Pluto And Charon Exploration
   - PI: Mark Gurwell (CfA)
   - Co-I’s: Bryan Butler (NRAO), Arielle Moullet (CfA), Leslie A. Young, Eliot F. Young, S. Alan Stern (SwRI), Harold Weaver (JHU/APL)

58) Measuring the thermal lightcurve of Kuiper Belt object Haumea
   - PI: Arielle Moullet (CfA)
   - Co-I’s: Mark Gurwell (CfA), Emmanuel Lellouch (ObsPM), Bryan Butler (NRAO), Raphael Moreno (ObsPM), Darin Ragozzine (CfA), Pablo Santos-Sanz (ObsPM)

59) Characterizing Io's atmospheric composition and circulation
   - PI: Arielle Moullet (CfA)
   - Co-I’s: Raphael Moreno (ObsPM), Bryan Butler (NRAO), Emmanuel Lellouch (ObsPM), Mark Gurwell (CfA), John Black (Chalmers U)

60) Mapping the nitrile chemistry and dynamics of Titan's thermosphere
   - PI: Raphael Moreno (ObsPM)
   - Co-I’s: Emmanuel Lellouch (ObsPM), Mark Gurwell (CfA), Arielle Moullet (CfA), Sandrine Vinatier (ObsPM), Taufiq Hidayat (Bosscha Obs, Indonesia)
61) *H2S and PH3 in Uranus' Atmosphere*
   - PI: Mark Hofstadter (JPL)
   - Co-I's: Bryan Butler (NRAO), Mark Gurwell (CfA), Arielle Moullet (CfA)

62) *Climbing the Nitrogen Ladder: ToO Observations of an Active Comet*
   - PI: M. Hogerheijde
   - Co-I's: G. Blake, I. de Pater, S. Milam, C. Qi, A. Remijan, C. Woodward

63) *THE HELIX: a look at the fate of our planetary system*
   - PI: Grazia Umana, Catania Astrophysical Observatory
   - Co-I: Joe Hora

**Extragalactic, Starbursts, and Luminous Infrared Galaxies**

64) *The Mass Spectrum of the ISM in Starbursts*
   - PI: Lisa Wei,
   - Co-I's: Eric Keto, Luis C. Ho, K.Y. Lo

65) *Millimeter Diagnostics for Obscured AGNs with ALMA*
   - PI: Teng
   - Co-I: Lisa Wei

66) *Resolving the Molecular Gas Phase in X-ray Cooling Flows in Galaxy Clusters*
   - PI: Randall
   - Co-I's: Vrtilnek, Blanton, Jones, Kraft, McDonald, Nulsen, Clarke, Lisa Wei, Lai

67) *Density structure function of the ionized and molecular gas in NGC 253*
   - PI: Juan Uson
   - Co-I's: Frederic Boone, Miller Goss, Martina Wiedner, Martin, Jun-Hui Zhao

68) *Detecting molecular gas from the star forming ram pressure stripped tail of the galaxy IC3418*
   - PI: Ananda Hota
   - Co-I: Nimesh Patel

69) *Testing the Underlying Law of Star Formation in the Nearby Southern Galaxy NGC 300*
   - PI: Jan Frobrich
   - Co-I: Charles Lada
70) Resolving the Molecular Gas Phase in X-ray Cooling Flows in Galaxy Clusters
   • PI: Scott Randall (CfA)
   • Co-I: Paul Nulsen

71) ALMA Continuum Observations of the Jet of Centaurus A
   • PI: Dharam Lal (CfA)
   • Co-I: Paul Nulsen

72) Molecular Gas and Feedback in the Cores of Galaxy Clusters
   • PI: Brian McNamara (Waterloo)
   • Co-I: Paul Nulsen

73) First Detection of CO in a GRB Host Galaxy
   • PI: Zauderer
   • Co-I’s: Edo Berger, Tanmoy Laskar

74) A Pilot Study: Detecting Molecular Outflows in NGC 4593
   • PI: Lisa Winter
   • Co-I’s – Zauderer

75) Molecular Gas and Continuum Emission in a Complete Sample of the Nearest Warm-ULIRGs/IR-QSOs
   • PI: David Sanders
   • Co-I: Vivien U

76) Measuring the Distribution of Molecular Gas in the Nearest Binary AGN
   • PI: Ezequiel Treister
   • Co-I: Vivien U

77) Charting Early Merger Stages at High Redshift with ALMA
   • PI: Alexandra Pope
   • Co-I: Chris Hayward

78) Merging IR-Luminous Galaxies -- Arp 220 and NGC 6240
   • PI: Nick Scoville
   • Co-I: Chris Hayward

79) The evolution of molecular gas in high-z galaxies within rich cluster environments
   • PI: A. Noble
   • Co-I: Doug Burke
80) An extreme galaxy in the core of a distant galaxy cluster
   • PI: E. van Kampen
   • Co-I: Doug Burke

81) ALMA observations of NGC 3393: the closest pair of super-massive black holes
   • PI: I. Balestra
   • Co-I: Fabbiano, J. Wang, Elvis, Risaliti

82) Probing the millimeter emission from M31* in its active phase
   • PI: Zhiyuan Li

83) Chemodynamics of AGN Fuelling and Feedback - NGC1365 as a local analogue for high redshift ALMA surveys
   • PI: Junfeng Wang

**Extragalactic, High Redshift, Submm Galaxies**

84) Astrophysics of a Massive QSO-host One Billion Years After the Big Bang
   • PI: Bolatto
   • Co-I's: Harris, Hollenbach, Stacey, Wolfire, Helou, Veilleux, Fischer, Lisa Wei, Kaufman

85) ALMA continuum imaging of H-ATLAS candidate lensed galaxies;
   • PI: Negrello
   • Co-I: Shane Bussmann

86) ALMA 13CO observations of lensed smgs selected from H-ATLAS;
   • PI: Swinbank
   • Co-I: Shane Bussmann

87) Water vapour emission from high-z galaxies as a probe of highly obscured nuclear regions
   • PI: van der Werf
   • Co-I: Shane Bussmann

88) CO redshifts of bright Herschel ATLAS lenses;
   • PI: Serjeant
   • Co-I: Shane Bussmann

89) High-resolution imaging of multiple CO transitions for high-redshift lensed galaxies from the H-ATLAS survey
   • PI: K. Scott
   • Co-I: Shane Bussmann
90) High density gas tracers in a lensed submillimeter galaxy discovered in the H-ATLAS survey
   • PI: Lupu
   • Co-I: Shane Bussmann

91) Detailed Investigation of the Dynamical Structure of the ISM in Submillimeter Galaxies via [CII] and [OI]
   • PI: Ibar
   • Co-I: Shane Bussmann

92) Connecting QSOs and Submillimetre Galaxies
   • PI: Bonfield
   • Co-I: Shane Bussmann

93) ALMA Detection of H-band Dropouts
   • PI: Karina Cauti, ROE
   • Co-I: Giovanni Fazio

94) ALMA Observations of the z=8.23 Host Galaxy of GRB090423: Obscured Star Formation at the Dawn of Time
   • PI: Berger
   • Co-I’s: Zauderer, Laskar

95) Unraveling Star Formation at z~3 with GRB Host Galaxies: A Pathfinder Project
   • PI: Laskar
   • Co-I’s - Zauderer, Berger

**Evolved Stars**

96) Circumstellar Chemistry in Carbon stars: How unique is IRC+10216?
   • PI: Nimesh Patel
   • Co-Is: Ken Young, Carl Gottlieb, Michael McCarthy, Patrick Thaddeus, Robert Wilson

97) Mass Return from Evolved Stars in the Galactic Bulge
   • PI: Ben Sargent
   • Co-I: Nimesh Patel

98) Searching for Evidence of Mass Loss from Classical Cepheids: the Case of RS Pup
   • PI: Massimo Marengo
   • Co-I: Nancy Evans