

Adam Frank

Title: **Of Paradigms and Progress**

Jason Nordhaus

Title: **Understanding the Influence of Low-mass Companions: Theory and Numerical Techniques**

Wolfgang Steffan

Title: **3D is key**

Abstract: Images of astrophysical sources are integrations along the line of sight, often with the complication of absorption within object itself. In many sources it is impossible to deduce the 3D structure from such a 2D projection alone. The knowledge of the accurate 3D structure and kinematics is key to solve many problems in circumstellar matter physics, especially for planetary nebulae. We briefly review the current techniques and tools that are being applied to reconstruct the structure of planetary nebulae. Then we propose some theoretical and observational research directions which might help to improve or complement these techniques.

Jennifer Sokoloski

Title: **Symbiotic stars as testbeds for binary shaping mechanisms**

Patrick Huggins

Title: **The early shaping of planetary nebulae**

Toshiya Ueta

Title: **AGB Mass Loss History Seen in the Cold Extended Dust Shells**

Abstract: I will review the current status of the work in progress using far-IR pointed-imaging survey data of cold extended circumstellar shells of evolved (mostly AGB) stars taken by AKARI and Spitzer, which are expected to provide us new insights into (relatively earlier) histories of mass loss and shell shaping in these stars.

Angela Speck

Title: **Rethinking Stardust Formation - observational challenges to the conventional wisdom.**

Abstract: Recent observational studies of circumstellar dust provide evidence that our current hypotheses on stardust condensation sequences are at best oversimplified. We will discuss the problems with the "common wisdom" on astromineralogy and dust condensation sequences.

Orsola DeMarco

Title: **PlaN-B and the binary search - a progress report.**

We are working towards gaining a detailed knowledge of the exact binary fraction of central stars of PN (with stellar companions) and their period distribution. Much progress has been made in the last two years by members of the PlaN-B consortium, including revising the binary fraction for periods smaller than about 2 weeks and the doubling of the sample of known central star close

binaries. In this talk we will present preliminary results of a new survey of central stars that aims at detecting binary companions by an IR excess technique.

You-Hua Chu

Title: **Debris Disks around White Dwarfs and Central Stars of PNe**

Abstract: Debris disks are detected around hot white dwarfs that are still surrounded by PNe. Are they caused by binary interactions or are they rejuvenated debris disks? In the latter case, the enhanced collision rates in the Kuiper Belt Objects is induced by resonances with giant planets. A promising way to find planets around white dwarfs!

Alberto Lopez

Title: **The Kinematics of Planetary Nebulae with Close Binary Nuclei**

Abstract: A review of the kinematics and morphology of a large sample of PNe with known close binary nuclei is presented and the results regarding what we expect to see and what we find are critically discussed.

Yolanda Gomez

Title: **An estimation of the magnetic field toward the young planetary nebula K 3-35.**

Abstract: K 3-35 is a young planetary nebula where water maser emission has been detected. Until now there are three confirmed H₂O-PNe, two of them with OH maser emission. Using the VLA we detected OH maser emission in the four ground state lines (1612, 1665, 1667 and 1720 MHz) toward K 3-35. The OH 1665 and 1720 MHz masers appear spatially coincident with the core of the nebula, possibly in a torus. A high degree of circular polarization (>50%) was found to be present in the 1665, and 1720 MHz emission. Assuming that the RCP and LCP 1665 features come from a Zeeman pair, we estimate a magnetic field of ~0.9 mG within 150 AU from the continuum peak.

Hans Van Winckle

Title: **Evolved binaries: what do they tell us?**

Wouter Vlemmings

Title: **Observations of magnetic fields in the envelopes of AGB, post-AGB and p-PNe objects.**

Abstract: I will focus my talk on the efforts in determining magnetic field strength and structure throughout circumstellar envelopes. Specifically the role of maser polarization observations in the radio-and dust/line polarization in the ALMA regime will be addressed. These include the efforts of determining a potential relation between the magnetic field strength and mass-loss rate.

Szczerba

Title: **Properties and formation of PNe in Galactic Bulge.**

Brent Miszalski

Title: **The morphologies of post common-envelope planetary nebulae**

Abstract: No clear morphological trends have previously been identified amongst post common-envelope (CE) planetary nebulae (PNe). Following the dramatic increase in post-CE nebulae from our thorough search of OGLE-III photometry, we have conducted a qualitative morphological study of 30 post-CE nebulae. Consideration of inclination effects in the much larger sample size has demonstrated for the first time a strong link between CE evolution and bipolar nebulae. Other clear trends are also emerging, but many more binaries must be found to improve the statistics. Current efforts to discover new binaries will be discussed along with some preliminary discoveries. These surveys are still in their infancy however, and specialised, large-scale photometric and spectroscopic surveys will be required to firmly establish the results of this still small morphological study with new binaries.

Raghvendra Sahai

Title: **From Spherical Winds to Jets and Disks: Probing the AGB to post-AGB transition with ALMA**

Mark Claussen

Title: **What the EVLA will offer for asymmetric PN research**

Mark Morris

Title: **Near-Future Opportunities for Research on Asymmetric PNe with Herschel and SOFIA**

Abstract: The SOFIA and Herschel platforms should both be invaluable for studying the photochemistry of the circumstellar outflows of preplanetary and planetary nebulae. Both pure rotational lines and vibration-rotation lines of molecules are accessible, and studies of the hydrides will be particularly interesting. In particular, the fate and of water and its photochemical progeny, as studied largely by Herschel, will inform our modeling of the thermal and chemical balances in the outflows. Other important areas in which these platforms will contribute include the evolution of grain sizes in long-lived disks, and the excitation of molecular hydrogen (SOFIA).

Bruce Balick

Title: **JWST-WFC3-ACS: Optical-IR Imaging Tools for the next decade**

Bruce Hrivnak

Title: **TBA**

Joel Kastner

Title: **X-ray Observations: What Are the Opportunities**

Olivier Chesnau

Title: **Optical interferometry**

Optical interferometry is becoming a mature science, and the advent of the Very Large Telescope Interferometer has been a breakthrough in this field, by increasing dramatically the sensitivity of the technique, in the mid-IR particularly. On one hand, this technique has its own constraints: the sensitivity remains limited, the community is very small and the number of AGBs/post-AGBs sources observed by semester is lower than 3-5. The sources have therefore to be carefully chosen, and a large diffraction limited survey in the mid-IR with 8m telescopes of a large sample of AGBs/PPNs allows us to select the most compact sources. On the other hand, the spatial resolution is 2-10mas, and the technique is very sensitive to compact sources (emitting in the infrared, which a-priori excludes hot sources). The technique is well suited for studying compact environments of dust and molecules (shells, disks, torus, wind-wind collisions...), and detecting low Teff companions, with a limiting contrast of about 5mag, within a area of about 10-100mas around the main source. The second generation instruments, currently under study, aim at improving the imaging capabilities of the technique, but the increase of the sensitivity should remain slow and limited. In particular, the MATISSE instrument will be able to combine 4 telescopes, observing simultaneously in the L (3.8 micron), (5 micron) bands and N (10 micron), providing a great synergy with ALMA in terms of spatial resolution, and dust studies.

Pablo Velazquez

Title: **TBA**

Eric Blackman

Title: **Challenges and Directions in Understanding the MHD-Binary Symbiosis**