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Research Groups & Projects

Experimental Astrophysics

Ground Based Radio Astronomy Station IAP-SWRDA
Infrared Sensor IAP-IRS
Gamma Astronomy Sensor IAP-GAMS
Spectroscopy Analysis Station IAP-SPECT
Meteorological Satellite Project IAP-SAT

Theoretical Astrophysics

Models for Pulsars, Supernovae, and Interstellar Media Processes

Publications 2010 – 2018 Full texts on <http://aecenar.com/publications>

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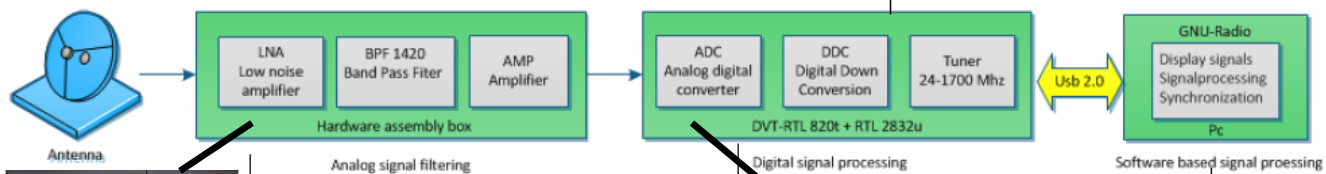
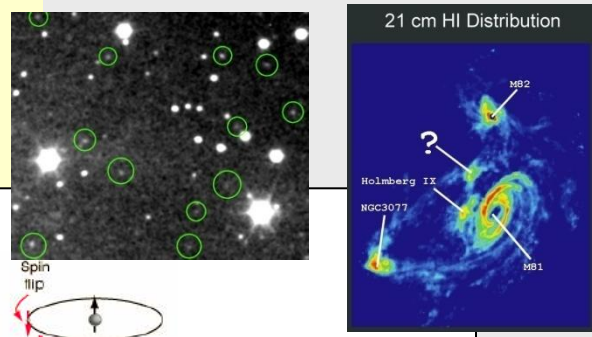
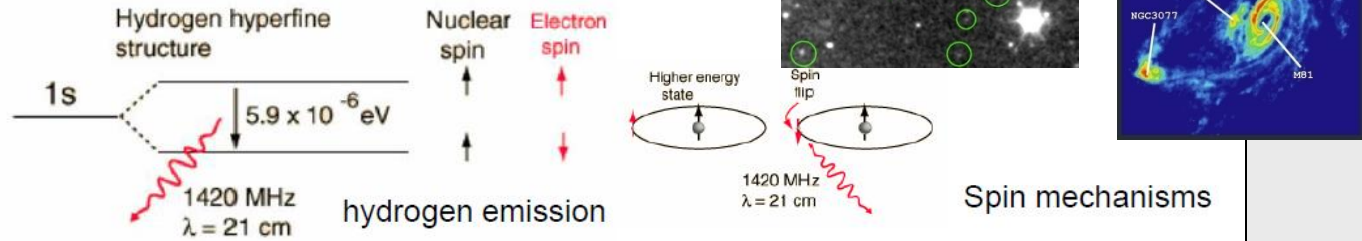
Student affairs

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Ground based station for supernova remnant HI line radio wave detector and analyzer (SRWDA)

Radio Astronomy



Next Working Packages (2018 – 2021):
 Installing Ground Station, Development of precise gimballed antenna to be able to take precise data from specific segments, Phase arrayed antenna development



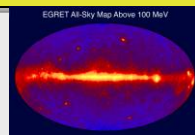
Space based gamma astronomy sensor IAP-GAMS

Gamma Astronomy

Next Working Packages (2018 – 2021):
 - Design of a scintillator based gamma ray sensor
 - Adapting to IAP-SAT



All-sky map above 100 MeV



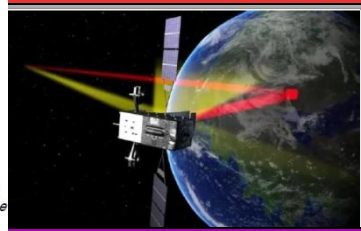
Ground based infrared sensor IAP-IRS

IR Astronomy

Next Working Packages (2018 – 2021):
 - Design of a proper infrared sensor
 - Collect IR data from Canopus Region



Illustration 1 : Caption: Black Widow nebula captured by Spitzer's IRAC. Credit: NASA/JPL-Caltech/E. Churchwell (University of Wisconsin-Madison) and the GLIMPSE Team



Optical Spectrometer IAP-SPECT

Spectrometrical Analysis of Optical Data

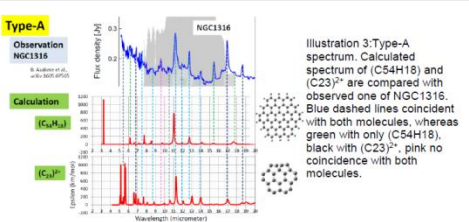
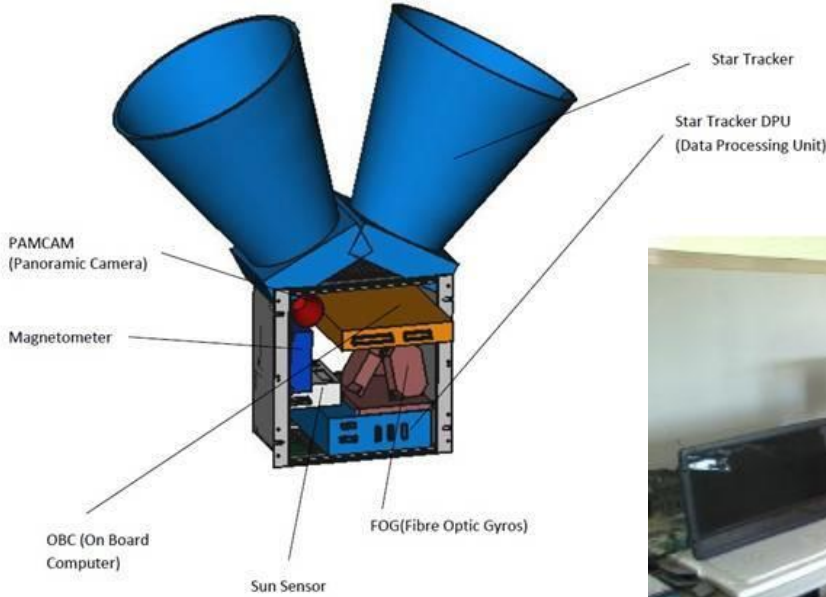


Illustration 3: Type-A spectrum. Calculated spectrum of (C54H18) and (C23)⁺ are compared with observed one of NGC1316. Blue dashed lines coincident with both molecules, whereas green with only (C54H18), black with (C23)⁺, pink no coincidence with both molecules.

Next Working Packages (2018 – 2021):
 - Building of Spectrometrical Station IAP-SPECT

Space Based Platform IAP-SAT

Satellite Bus

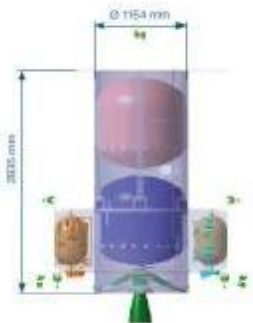


CHEMICAL ORBITAL PROPULSION MODULE

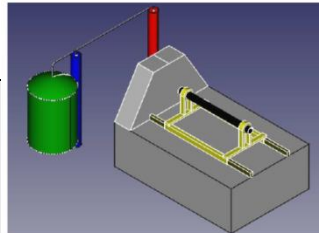
Chemical Orbital Propulsion Module for transfer orbit, attitude maneuver during transfer orbit, station keeping and deorbiting.

EPDM - BLADDER TANK BT 01/0

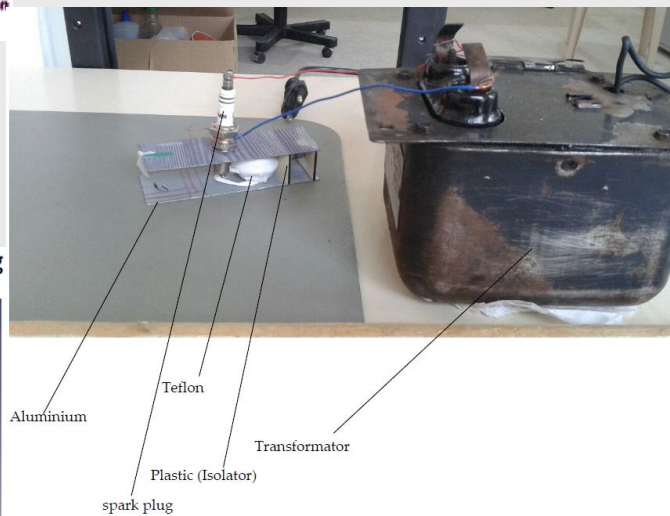
Bi-propellant UPS B2
 Propellant Loading Mass: 1600 kg

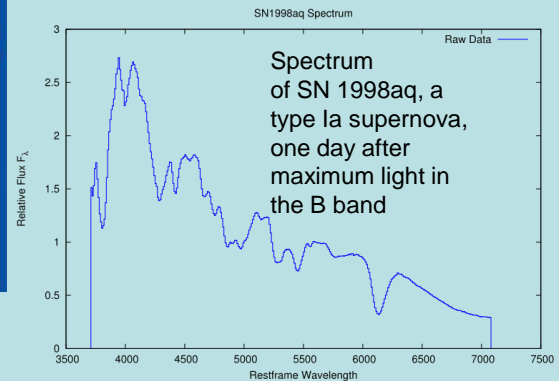
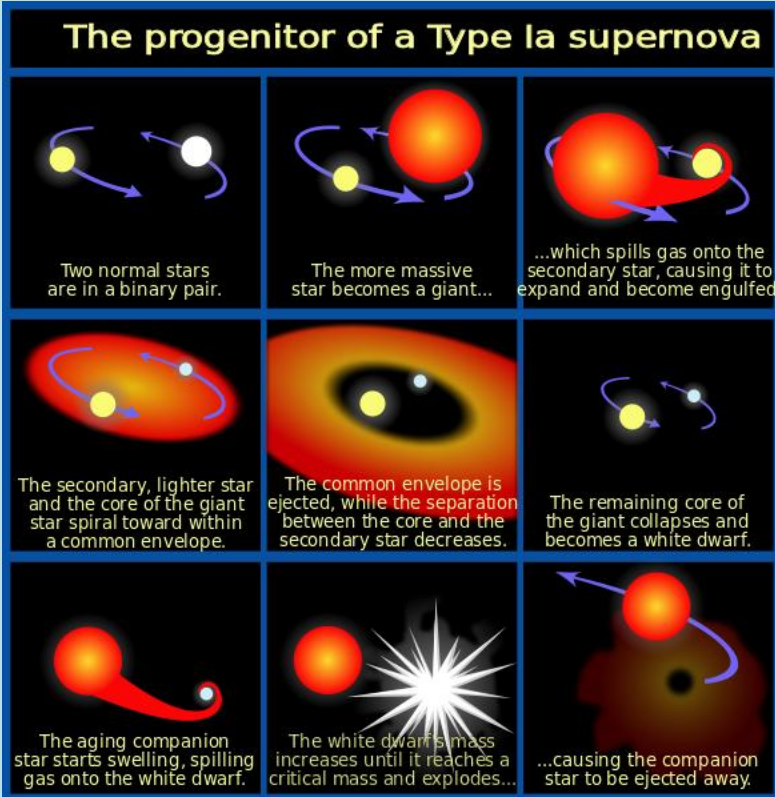


Chemical Propulsion Testrig

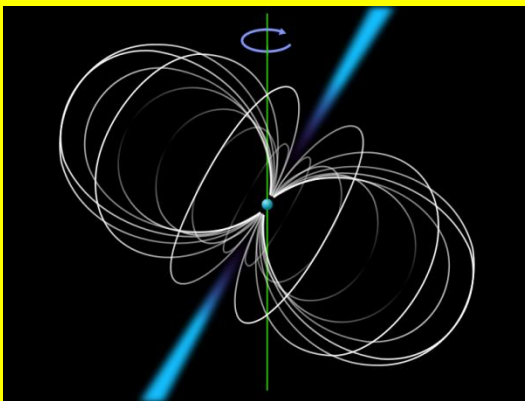


Electrical Propulsion Unit

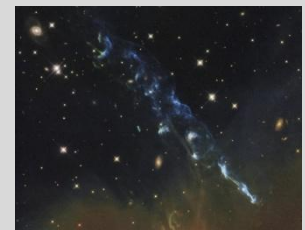
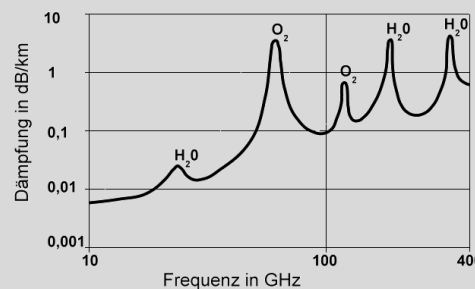




Models for Supernovae



Models for Pulsars



Models for Interstellar Media (ISM) Processes

Areas:

Plasma Physics, Thermodynamics, Magnetohydrodynamics (MHD), thermo-nuclear star processes, fusion processes, object orientated programming (C++/qt)