Universidad de Valparaíso CHILE Instituto de Física y Astronomía
Facultad de Ciencias, U. de Valparaíso

SEMINARIOS ASTROFISICOS

Lista de seminarios astrofísicos realizados para Profesores, Postdocs, alumnos de Postgrado y Pregrado
Auditorio 11-A, Facultad de Ciencias, Gran Bretaña 1111, Playa Ancha, Valparaíso.

Año 2008

Marzo 14, 2008, 14.00 hrs.
Dr. Hans Zinnecker del Astrophysikalisches Institut, Postdam, Alemania - ESO
"Direct imaging search for giant planets around white dwarfs"

Mayo 27, 2008, 14.00 hrs.
Isaura Fuentes-Carrera del Observatorio de Paris-Meudon
"InteracciÛn de galaxias espirales: el caso de Arp 240"
En la actualidad es ampliamente aceptado que las galaxias, tal y como se conocen ahora, se formaron a partir de la fusiÛn de sistemas de menor tamaÒo. La interacciÛn de galaxias es un fenÛmeno comun que juega un papel importante en la formaciÛn y evoluciÛn de estos sistemas, determinando su tipo morfolÛgico y su historia de formaciÛn estelar. En esta charla presentarÈ observaciones del par de galaxias espirales en interacciÛn Arp 240 (NGC 55257/58) obtenidas con un interferÛmetro Fabry-Perot de barrido. Se hara una breve descripciÛn de esta tÈcnica observacional, seguida del an·lisis de la cinem·tica del gas ionizado de este sistema. Los resultados se compar·n con observaciones en el infrarrojo, CO(1-0) y HI tomadas de la literatura.

Junio 13, 2008, 14.00 hrs.
Dr. MatÌas GÛmez, Universidad de ConcepciÛn, Chile
"Globular Clusters in the giant elliptical NGC5128"
I will present our program to study Globular Clusters in the giant elliptical NGC5128 (Centaurus A). Using Magellan/IMACS images covering a 1.2 ◊ 1.2 deg2 field of view with seeing of 0.4"-0.6", we have applied convolution techniques to analyze the light distribution of 364 confirmed globular clusters in the field of NGC 5128 and to obtain their structural parameters. Combining these parameters with existing Washington photometry from Harris et al., we are able to examine the size difference between metal-poor (blue) and metal-rich (red) globular clusters. For the first time, this can be addressed on a sample of confirmed clusters that extends to galactocentric distances about 8 times the effective radius, R_eff, of the galaxy. Within 1R_eff, red clusters are about 30% smaller on average than blue clusters, in agreement with the vast majority of extragalactic globular cluster systems studied. As the galactocentric distance increases, however, this difference becomes negligible. Thus, our results indicate that the differences between the effective radii, r_e, of the clusters could be explained purely by projection effects, with red clusters being more centrally concentrated than blue ones, and by an intrinsic r_e-R_gc dependence, like the one observed for the Galaxy.

I will also discuss our additional programs on the same target galaxy to better understand its kinematics and dynamics using GCs as tracers of their host galaxy potential and episodes of star formation.

Junio 19, 2008, 14.00 hrs.
Dra. Margaret Hanson, Department of Physics, University of Cincinnati, USA
"One Hundred 30 Dors: Is the Milky Way different or are we somehow missing them?"
There are a few ways to estimate the number of massive open clusters expected in the disk of the Milky Way, such as the total star formation rate of the Galaxy, or the open cluster mass function extrapolated to include the entire Galaxy. Surprisingly, they give similar predictions: the Milky Way should contain about 100 clusters as massive as 30 Doradus in the Large Magellanic Cloud, and even several clusters with 10 times that mass. Are we seeing them? This talk will first look closely at these predictions and compare that to what we have found so far in our Galaxy. I will then present sophisticated Monte Carlo imaging simulations our group is doing to estimate the selection biases faced by current near-infrared searches for these massive clusters.

Agosto 26, 2008, 14.00 hrs.
Dr. Miguel Verdugo Institut f¸r Astrophysik Gˆttingen
"The star formation activity in the outskirts of intermediate redshift clusters"
Al observar c˙mulos de galaxias se observa que su contenido de tipos de galaxias es diferente al observado en el campo, mientras que al observar c˙mulos distantes se observa que sus poblaciones de galaxies son tambien diferentes. Esto puede ser causado por la tardÌa Època de formaciÛn de los c˙mulos, en concordancia con los modelos jer·rquicos de formaciÛn de estructuras, o por fenÛmenos de transformaciÛn de galaxias especÌficos de los c˙mulos. PresentarÈ resultados de observaciones de galaxias, en c˙mulos a z~0.25, a grandes distancias desde el centro. Es en esas regiones en donde las galaxias son por primera vez afectadas por el medioambiente presente en los c˙mulos. Para esto, se tomaron espectros de centenares de galaxias y su actividad de formaciÛn estelar fue comparada con el medioambiente global y local de las galaxias.

Octubre 14, 2008, 14.00 hrs.
Dr. Nelson Padilla, Pontificia Universidad CatÛlica
"Understanding local and global influences on the galaxy population"
Reports on the detection of local and global modulations of star formation in galaxies are reviewed and compared to results from semi-analytic models. The latter are used for the following main objectives, i) to study the expected extent of the influence of individual galaxies on their neighbors, ii) to assess the influence of the halo merger histories on the properties of the galaxies, and iii) to characterise the relation between halo assembly and local/global environments.

Octubre 23, 2008, 14.00 hrs.
Dra. Mariana Orellana, FCAG-Universidad Nacional de La Plata, Argentina. Tesis Doctoral dirigida por el Dr. Gustavo Romero
"RadiaciÛn Gamma en binarias con acreciÛn"
A lo largo de la investigaciÛn vinculada con esta tesis se estudiaron modelos de binarias de rayos gamma con acreciÛn. Este tema ha experimentado un progreso radical durante los ˙ltimos aÒos debido a los resultados obtenidos por telescopios Cherenkov. EspecÌficamente, hemos estudiado el caso de un objeto compacto de bajo campo magnÈtico, capaz de efectuar eyecciones de masa confinadas en chorros de partÌculas relativistas (microcu·sares). Al suponer un contenido de protones relativistas en el jet, se producen interacciones hadrÛnicas con

protones frÌos que a modo de blanco provee el viento estelar. Se considerÛ, entre otras aplicaciones, a la controvertida fuente LSI +61 303. En los casos contemplados, donde la binaria contiene una estrella de tipo espectral joven, la propagaciÛn de los rayos gamma muy energÈticos generados en el volumen del sistema binario puede inducir el desarrollo de cascadas electromagnÈticas dominadas por el mecanismo de dispersiÛn Compton inversa. Hemos desarrollado un cÛdigo para la simulaciÛn Monte Carlo de tales cascadas. Se exponen algunos de los resultados obtenidos, poniendo en relieve la importancia de este problema para la correcta estimaciÛn de un espectro detectable a energÌas mayores que algunos GeV.

Octubre 28, 2008, 14.00 hrs.
Dr. Thierry Montmerle, Laboratoire d'Astrophysique de Grenoble, Eso visiting scientist
"What happened to the solar system 4.5685 billion years ago?"
Our knowledge of the chronology of events that took place at the earliest stages of evolution of the solar system derives from two very different bodies of evidence: (i) the observation of young, solar-type stars in various regions of star formation, isolated or in associations; (ii) the deciphering of the meteoritic record of "anomalous" abundances of some elements in the solar system. Along with an extremely precise age of the birth of the solar system (4.5685 Gyr ± 0.5 Myr), meteorites tell us that something dramatic happened at that time: a supernova explosion in its vicinity. Was this a unique event ? Or are young, forming planetary systems frequently exposed to such events ? The topic is currently highly controversial, and I will discuss the present state of the art.

Noviembre 4, 2008, 14.00 hrs.
Dra. Danielle Alloin, CEA/DSM/IRFU, UniversitÈ Paris 7 & ESO Visiting Scientist
"Extremely massive young stellar clusters"
At the inner Lindblad resonance in the barred spiral active galaxy NGC1365, we have discovered a number of new sources, compact and bright, which popup at mid-infrared and radio wavelengths, while they are invisible in the optical and near-infrared. Imaging and spectroscopy in the mid-infrared have been collected at the VLT with VISIR, and are used to unveil the nature of such sources. Using several age indicators and two modelling tools (STARBURST and GRASIL), we find that these sources correspond to star clusters at an age of about 7 Myrs, extremely massive, 107 Mo, and still embedded in their parent molecular material. This poses a number of key-questions: How could they be so massive? How is it that at this age they are still embedded in cold material? What is their lifetime?