



Universidad Nacional de Córdoba

FACULTAD DE MATEMÁTICA ASTRONOMÍA Y FÍSICA



**UNIVERSIDAD NACIONAL DE CÓRDOBA**  
Facultad de Matemática, Astronomía y Física

## PROGRAMA DE CURSO DE POSGRADO

<b>TÍTULO: Propiedades astrofísicas de galaxias enanas: el Sistema Magallánico</b>	
<b>AÑO: 2018</b>	<b>CUATRIMESTRE: Segundo</b>
<b>CARGA HORARIA: 60 hs.</b>	<b>No. DE CRÉDITOS:</b>
<b>CARRERA/S: Astronomía</b>	
<b>DOCENTE ENCARGADO: Andrés Eduardo Piatti</b>	

### PROGRAMA

#### **I. Estructura y dimensiones de las galaxias**

Descripción de diferentes indicadores de distancia. El *clump* de las gigantes rojas: justificación y uso como indicador de distancia. Conteos estelares: descripción de diferentes técnicas, utilización y alcance. Relevamientos fotométricos. Descripción de las estructuras observadas en las galaxias. Ajustes de perfiles de densidad estelar. Efectos de proyección espacial de las galaxias.

#### **II. El puente Magallánico y el Leading Arm**

Descripción de evidencias observacionales. Características. Trazabilidad del puente: diferentes indicadores. Dimensiones del puente. Poblaciones estelares: edad, metalicidad. Origen del puente.

#### **III. Dinámica de las galaxias**

Movimiento propio: procedimientos de medición y estimación de errores. Velocidades espaciales: cómputo y limitaciones. Descripción de algunos modelos teóricos de dinámica de galaxias. Comparación entre observaciones y modelos teóricos. Efectos de la dinámica de galaxia en la formación y evolución estelar de las mismas.

#### **IV. Los cúmulos estelares**

Diferentes catalogaciones. Catálogos actualizados. Propiedades globales de los sistemas de cúmulos estelares. Distribuciones de edad, metalicidad, y dimensiones de los sistemas de cúmulos estelares. Destrucción de cúmulos estelares. Taza de



formación de cúmulos. Los cúmulos más viejos. Los cúmulos más jóvenes.  
Fenómeno de cúmulos estelares con formación estelar múltiple.

#### **V. Abundancias metálicas**

Determinaciones espectroscópicas y fotométricas. Calibraciones de indicadores de metalicidad. Estimación de errores. Escalas de abundancias metálicas. Distribución espacial de las metalicidades de estrellas del campo y de cúmulos estelares. Gradientes de metalicidad radial y axial. Análisis de sus diferencias e implicancias en la formación y evolución química de las galaxias.

#### **VI. Evolución química: modelos teóricos y evidencias observacionales**

Descripción de modelos teóricos: elaboración bajo supuestos de formación aislada y de tipo *burst*. Comparación entre diferentes modelos teóricos. La relación edad-metalicidad (REM) de las estrellas del campo y de los cúmulos estelares: análisis de diferentes REM teóricas y observacionales. Variaciones espaciales de la REM.

#### **VII. Historia de la formación estelar de las galaxias**

Reconstrucción de la tasa de formación estelar (TFE) en las Nubes de Magallanes. Diagramas color-magnitud sintéticos: su fundamentación, limitaciones, supuestos básicos. Métodos de construcción de diagramas color-magnitud sintéticos: implementación. Comparación de diferentes TFE. Evidencias observacionales de episodios de formación estelar intensa. Relación de la formación estelar intensa con la interacción de galaxias.

#### **VIII. Interacción entre galaxias**

Diferentes modelos teóricos de interacción de las galaxias. Análisis de las evidencias observacionales de la interacción entre las Nubes de Magallanes. Comparación con modelos teóricos. Consecuencias observables y observadas de la interacción gravitatoria.

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**MODALIDAD DE LA EVALUACIÓN**

**Examen final oral con presentación de monografía.**