

the large scale properties of the molecular gas distribution over the galactic plane and of its velocity field. From the latter we can derive also the rotation curve.

The parameters that can be derived from these maps are: the systemic velocity (therefore the distance to the galaxy), the total molecular gas mass, M_{H_2} (and, using the HI mass, the total gas mass, M_H), the total mass of the galaxy (from the rotation curve), M_T , and the ratios between all these masses and between these masses and the luminosity.

The results show that: a) the molecular gas distribution is centrally peaked in the five galaxies; b) the molecular gas mass is $(3.7 \pm 0.6) \times 10^9 M_\odot$ except for NGC 1433 ($0.4 \times 10^9 M_\odot$); c) $M_{H_2}/M_{HI} = 0.5$ to 1.4; d) $M_H/M_T = 0.04$ to 0.4, and e) the average ratios between the intensities of the lines for the $^{12}CO(2-1)$ and $^{12}CO(1-0)$ transitions, are 1.3 for all the detected galaxies.

OBSERVAÇÃO DE MASERS DE METANOL

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A molécula do metanol, através da sua emissão maser em 12,7 GHz, está intimamente ligada a regiões galácticas que estão atravessando o período de intensa formação de estrelas. Assim, a busca e detecção dessa molécula em regiões onde já foram encontrados masers de vapor d'água nos permite conhecer um pouco melhor a composição química dessas nuvens moleculares. Com o intuito de estudar essa emissão instalamos no ROI um receptor com características excelentes (temperatura de sistema da ordem de 200 K). Apresentamos os primeiros resultados observacionais desses masers, as especificações do programa especialmente desenvolvido para esse propósito e os planos futuros associados a novos espectrômetros acústico-ópticos de alta resolução.

YOUNG MASSIVE STARS IN THE GALACTIC DISK

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Regions of massive star formation can be identified as *IRAS* point-like sources with characteristic FIR colors in the galactic plane. The close association of these sources with molecular clouds provides a way of determining their kinematic distances and therefore luminosities and other properties. We

have used observations of CS (2-1) to identify and associate 208 point-like sources with particular GMC's in the fourth galactic quadrant. At least 15% of the total FIR emission from massive star forming molecular clouds is produced in the close vicinity of the stars. The radial distribution of the FIR luminosity generated by embedded massive stars is similar to that of H_2 but the "massive star" ring is narrower than the molecular ring; from the 3 kpc expanding arm to the Carina arm in the outer Galaxy the FIR surface luminosity is proportional to the 2^{nd} power of the H_2 surface density. The radial distribution of embedded massive stars, similar to that of the FIR emissivity and to the radial variation of the ISRF, may be tracing the overall level of star formation activity in the galactic plane. We have obtained near infrared images of the most conspicuous massive star forming regions in the fourth galactic quadrant using the infrared camera mounted on the Dupont Telescope at the Carnegie Observatory in Cerro Las Campanas. Clusters of OB stars at distances of up to 10 kpc were resolved, and *JHK* photometry of these sources is presently underway.

BURBUJAS DE GAS NEUTRO ALREDEDOR DE ESTRELLAS DEL TIPO O

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En base a observaciones de la línea de 21-cm del HI, hemos detectado burbujas de gas neutro alrededor de las siguientes estrellas del tipo O: HD 112244, HD 135240, HD 135591, HD 175754 y HD 175876.

Las burbujas observadas tienen radios entre 30 y 85 pc, velocidades de expansión menores que 10 km s^{-1} y edades dinámicas de pocos millones de años. La energía cinética de estas burbujas de gas neutro es menos que el 10% de la energía cinética entregada al medio circundante por los vientos de las estrellas asociadas. Por lo tanto, seguramente los fuertes vientos de las estrellas O han soplado las burbujas de HI que hemos detectado en su alrededor.

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