Contribution ID: **517** Type: **Oral Presentation**

Angular Momentum of Giant Molecular Clouds

Tuesday, 10 July 2012 11:40 (20 minutes)

Abstract content
   (Max 300 words)

Observations of Galactic and extragalactic giant molecular clouds (GMCs) at millimeter wavelengths show that these star-forming structures sometimes have systematic linear velocity gradients. In order to address the question of the origin of the gradients and, therefore, the question of GMC evolution, I will present a detailed analysis comparing the velocity fields of molecular clouds and the atomic hydrogen (HI) surrounding them. I have used CO and 21-cm observations to make first-moment velocity maps of the molecular clouds and associated HI. For GMCs in the Galaxy and M33, my key finding is that the gradient position angles of HI and the associated GMCs are generally not aligned. And if, as some authors have argued, the linear velocity gradients in GMCs are caused by rotation, their angular momentum is much less than that predicted by formation scenarios in which GMCs collapse from the surrounding interstellar medium. Furthermore, in M33 I find that the atomic gas associated with GMCs generally has higher velocity gradients than does high-density atomic gas in which GMCs are not observed.

Apply to be
 consider for a student
   award (Yes / No)?

No

Level for award
 (Hons, MSc,
   PhD)?

N/A

Main supervisor (name and email)
and his / her institution

N/A

Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?

No

Primary author: Dr IMARA, Nia (Astronomy Department, University of California, Berkeley, USA)

Presenter: Dr IMARA, Nia (Astronomy Department, University of California, Berkeley, USA)

Session Classification: Astrophysics

Track Classification: Track D1 - Astrophysics