

ABSTRACT ONLY

EXPLORING THE SUBSTELLAR INITIAL MASS FUNCTION

K. Muzic¹

Studies of the substellar mass regime at young ages are crucial for understanding the mass dependence in the formation and early evolution of stars. Deep surveys in young clusters are of particular importance, as they help to determine the shape and the low-mass limit of the IMF, which are fundamental constraints on star formation theory. Our project SONYC (Substellar Objects in Nearby Young Clusters) is a survey program designed to provide a census of the substellar population in nearby star forming regions. Through SONYC and similar surveys by other groups, the substellar IMF is now well characterized down to 5 - 10 MJup, and it is found that star formation process typically generates about 2 - 5 brown dwarfs per 10 stars. Two of our deepest studies are complete down to ~ 5 MJup, and have yielded several young brown dwarfs with masses close to, or below the Deuterium-burning limit.

In addition to the nearby star forming regions studied with SONYC, which have relatively low densities and no massive stars, we are for the first time extending the survey to drastically different environments. Our new study of the cluster RCW38, characterized by very high stellar density and many OB stars, allows us to look for variations in the properties of the substellar IMF as a function of environment.

¹ Núcleo de Astronomía, Facultad de Ingeniería, Universidad Diego Portales, Av. Ejército 441, Santiago, Chile. (koraljka.muzic@mail.udp.cl).