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# Hints of inward migration during the formation of massive multiples revealed by GRAVITY

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## Abstract

The high incidence of close multiples in main sequence massive stars questions the way they form. Recent observational evidence from the very young HII region M17 suggests that massive stars are formed at large separations and migrate inward in a few Myrs. Detecting companions within the expected size of the accretion disk would then place important constraints on the pairing mechanism of massive stars. Our recent VLTI/GRAVITY observations of six young O stars in M17 revealed that multiplicity is set early during the formation of massive stars with more than 2 companions on average. We will present the observational constraints that arise from the modelling of the interferometric observables and their implications in the framework of massive star formation. In addition, these observations revealed the presence of an exotic system composed of an inner main sequence binary surrounded by an outer pre-main sequence tertiary with an extended dusty structure much like a protostellar disc. Such a configuration would suggest that high-order massive multiples could be formed via sequential star formation. We aim to discuss the possibility of observing many more young massive stars and monitoring such exotic objects with the current and future capabilities of GRAVITY+.

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