

# OVERVIEW OF KEY DYNAMICS QUESTIONS

(and the conference)

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# THREE MAIN AREAS

- Dynamical Modelling of Individual Clusters
- Compact Objects in Galactic and Extragalactic Globular Clusters
- Formation and Evolution of Globular Cluster Systems

# DYNAMICS OF GALACTIC CLUSTERS

(MONDAY, SOME OF THU-FRI)

- Do we understand theoretically, even at a basic level, what determines the structural parameters of observed GCs?
- What are the key physical ingredients?
  - Primordial binaries? (Fregeau, Richer, Heinke, Knigge, Ivanova, Rich)
  - Initial conditions? (Heggie, Fregeau)
  - Maybe something new or more exotic? Mass segregation of remnants? (Davies) IMBHs? (Umbreit, Trenti) White Dwarf kicks? (Richer)

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Theorists can still have fun...

# COMPACT OBJECTS AND OTHER EXOTICA

(TUESDAY AM, THURSDAY PM, FRIDAY AM)

- Observationally we now know a lot! (Ransom, Heinke, Webb, Fabbiano, Brassington, Kundu) Theoretical models are becoming more detailed too (Ivanova).
- Are there black holes in GCs? (Maccarone)
- Are there central MBHs in GC? (Noyola, van der Marel) How do they affect cluster dynamical evolution? (Umbreit, Trenti) How can they form? (Holley-Bockelman)
- Are blue stragglers formed by stellar collisions or binary mergers, or some combination? (Sills, Ferraro, Knigge, Dieball)

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**Still not sure...**

# CLUSTER FORMATION AND INITIAL CONDITIONS

(TUESDAY, WEDNESDAY AM, THURSDAY AM)

- Are all stars formed at  $t=0$  with a standard Kroupa IMF?
  - What about primordial mass segregation (McMillan), “top-heavy” IMFs as suggested in young dense clusters and UCDs (Gallagher, Bastian, Baumgardt), multiple populations (Piotto, Gratton, Cohen, Vesperini, D’Antona, Charbonnel) ?
- How is the present-day CMF related to the ICMF and GC formation?
  - How can we model/understand the evolution of GC systems *without* a good theoretical understanding of dynamical evolution for individual clusters? (Chandar, Waters, Gieles, Fall, Romanowsky)
- How is GC formation related to galaxy formation and evolution? (Parmentier, Goudfrooij, Gnedin, Escala, Rhode, Peng)

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All important, and make dynamical modeling more difficult...
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