

# MMRG Notes; 11.05.04

## Papers.

Chaimowicz, L., Kumar, V. and Campos M. F. M. “A Paradigm for Dynamic Coordination of Multiple Robots”, *Autonomous Robots* 17(1): 7-21, July 2004.

Nidhi, Dave, and Tony’s Hoplites paper. Not published yet.

Huntsberger, T., Pirjanian, P., Trebi-Ollennu, A., Das Nayar, H., Aghazarian, H., Ganino, A.J., Garrett, M., Joshi, S.S., Schenker, P.S. “CAMPOUT: a control architecture for tightly coupled coordination of multirobot systems for planetary surface exploration”, *IEEE Transactions on Systems, Man and Cybernetics, Part A* 33(5).

## Questions.

- What is the difference between a tightly coordinated and a loosely coordinated multi-robot team?  
What is necessary before we will apply the term “tightly coordinated” to a team?
- Is it the task definition, team definition, or implementation etc. that necessitates tight coordination?  
Of what is tight coordination a feature?
- Realistically, is a reactive approach the only way to truly implement tight coordination?
- Are kinematic approaches to coordination really coordination mechanisms?
- What are the qualitative differences between the security sweep/art gallery etc. domains and box pushing/formations?
- Could Chaimowicz’s approach work for perimeter sweeping?
- What are the real-world difficulties we can expect when trying to have both planned and tight coordination?
- How is the utility function in (Chaimowicz et. al. 2004) similar and different from the revenue/cost function used in Hoplites?
- What are the biggest weaknesses of Hoplites?
- How can a tightly-coordinated team be robust to failures? In what ways is it possible and what ways impossible?