1   Introduction and Related Work

Representation of the environment of a mobile robot is of fundamental importance [Mankowsky *et al.*(2017)Mankowsky, Liu, Rajasekaran, Liu, Mou, Zhou, Merlin, Först, and Cavalleri]. If there is no prior information about the environment the the robot has to build this during the exploration. Over the past decade there has been a lot of work on map building for mobile robots. Some approaches use the landmarks (installed or natural) as a reference for map building while some use the relative positions of landmarks as invariant features for map building [Fehske, Holicki, and Weiße(2000)].

References

[Fehske, Holicki, and Weiße(2000)] Fehske, H., Holicki, M., and Weiße, A., in *Advances in Solid State Physics 40*, edited by B. Kramer (Springer Berlin Heidelberg, Berlin, Heidelberg, 2000) pp. 235–250.

[Mankowsky *et al.*(2017)Mankowsky, Liu, Rajasekaran, Liu, Mou, Zhou, Merlin, Först, and Cavalleri] Mankowsky, R., Liu, B., Rajasekaran, S., Liu, H., Mou, D., Zhou, X., Merlin, R., Först, M., and Cavalleri, A., Physical review letters **118**, 116402 (2017).