1. Record Nr. UNINA9910254206103321 Autore Francis Bruce A Titolo Flocking and Rendezvous in Distributed Robotics / / by Bruce A. Francis, Manfredi Maggiore Pubbl/distr/stampa Cham:,: Springer International Publishing:,: Imprint: Springer,, 2016 **ISBN** 3-319-24729-8 Edizione [1st ed. 2016.] Descrizione fisica 1 online resource (113 p.) Collana SpringerBriefs in Control, Automation and Robotics, , 2192-6786 Disciplina 629.892 Soggetti Robotics Automation Control engineering System theory Robotics and Automation Control and Systems Theory Systems Theory, Control Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references. Nota di contenuto Introduction -- Models of Mobile Robots in the Plane -- Admissible Controls and the Robot Flocking Problem -- The Robot Rendezvous Problem: Limited Camera Range -- A Convoy Problem -- A Look into the Future: Flying Robots. Sommario/riassunto This brief describes the coordinated control of groups of robots using only sensory input – and no direct external commands. Furthermore, each robot employs the same local strategy, i.e., there are no leaders. and the text also deals with decentralized control, allowing for cases in which no single robot can sense all the others. One can get intuition for the problem from the natural world, for example, flocking birds. How do they achieve and maintain their flying formation? Recognizing their importance as the most basic coordination tasks for mobile robot networks, the brief details flocking and rendezvous. They are shown to be physical illustrations of emergent behaviors with global consensus

arising from local interactions. The authors extend the consideration of these fundamental ideas to describe their operation in flying robots

and prompt readers to pursue further research in the field. Flocking and Rendezvous in Distributed Robotics will provide graduate students a firm grounding in the subject, while also offering an authoritative reference work for more experienced workers seeking a brief but thorough treatment of an area that has rapidly gained in interest.