



HAL
open science

L1 Adaptative control for small underwater vehicles

Divine Maalouf, Ahmed Chemori, Vincent Creuze

► **To cite this version:**

Divine Maalouf, Ahmed Chemori, Vincent Creuze. L1 Adaptative control for small underwater vehicles. ICOURS'12: International Conference on Underwater Remote Sensing, Oct 2012, Brest, France. lirmm-00744717

HAL Id: lirmm-00744717

<https://hal-lirmm.ccsd.cnrs.fr/lirmm-00744717>

Submitted on 23 Oct 2012

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

L1 Adaptive control for small underwater vehicles.

Divine Maalouf, Ahmed Chemori, Vincent Creuze

LIRMM, Laboratoire d'Informatique de Robotique et de Microélectronique de Montpellier

Université Montpellier 2 / CNRS

France

vincent.creuze@lirmm.fr

Small underwater vehicles are subject to many disturbances and modelling uncertainties. To overcome these problems, we have introduced a L1 nonlinear adaptive controller for the first time onboard an tethered underwater vehicle. This adaptive controller allows fast convergence of the estimated parameters of the dynamic model even without any a priori knowledge of their values. It is robust to parameters' change, such as salinity or payload changes. It appears that this controller also rejects disturbances (mechanical shock, waves...) We will detail the theoretical aspects of the said controller and will present the experimental results, obtained with an AC-ROV prototype.