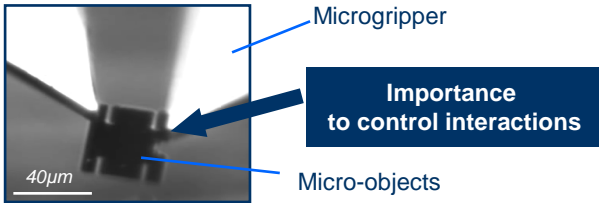


Context

Robotic microassembly



Interactions between micro-objects and grippers

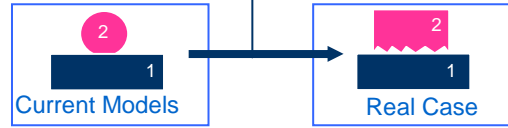
Low reliability of current models

Measure limited to very simple geometries (sphere-plan)

- Difficulties to simulated micromanipulations
- Difficulties to design microgrippers

Objectives

Modeling and measurement of interaction in the context of micromanipulation

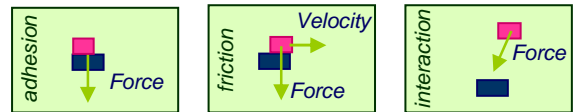


Building a platform

- of micro-forces simulations
- of micro-forces measurements.

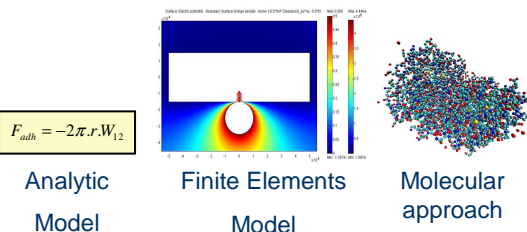
Dimensional domain: from 100 nm to 100 µm

Scenarii of study



Modeling and Simulation

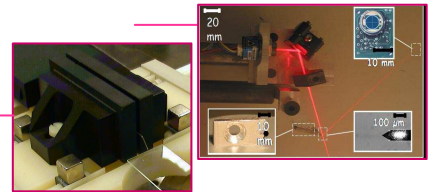
- Modeling of forces in the microscale
- building simulation means
- Identification of parameters
- Proposed methods:



force measurement and positioning

Study and improvement of means of measure

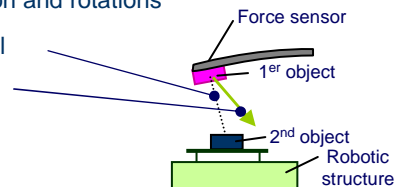
- Improvement of AFM
- Piezoresistif sensors
- Magnetic sensors
- Study of joining



Control of the relative positions of tested objects

Degree of freedom : translation and rotations

- Study of the Trajectory control
- Study of the force control
- Study of Hybrid control



NANOROL

A new platform

Control of the environment

Cleanness, vibration, climatic and chemical parameters

Worldwide access

Open to international users (academic and industrials)

contacts

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Collaborations

French research program ANR

2008-2012

Partners:

FEMTO-ST (Besançon) : 130 humans.month

ISIR (Paris VI) : 66 humans.month

International context

Partnership with Univ. Libre de Bruxelles

Extension planned in european projects