

**Job/Fellowship Reference:** C2008-IST/IDMEC.4

**Main research field:** Engineering

**Sub research field:** Mechanical Engineering

**Job summary:**

**IDMEC/IST-4:** Integrated Design, Analysis and Control of Flexible Light Weight Multibody Structures

Development of methodologies and tools for integrated design, analysis and control of flexible light weight multibody structures (unfolding space structures, flexible manipulators, antennas, etc.) with distributed piezoelectric actuation and kinematic redundancy. The multivariable controller design shall be tackled in a structural-control integrated fashion and the control architectures shall be based on the feedback of structural and rigid body sensed variables (deformation values at different cross sections of the flexible links, acceleration, velocity and force). An actuation network consisting of high authority joint actuators and low authority structural actuators (smartlinks) shall be considered. Decentralized and centralized approaches shall be confronted. In the former the controlled joints and controlled smartlinks are designed separately in order to achieve a given tracking performance for the tip and in the latter the control value shall be given directly by a nonlinear dynamics based controller. The performance shall be evaluated in terms of vibration damping, tip tracking error under position and force control in free space and when interacting with compliant and stiff surfaces, and robustness. The final selection of candidates for the open positions will be subject to a decision from FCT.

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**Vacant posts:** 1

**Type of contract:** Contrato a termo certo

**Job country:** Portugal

**Job city:** Lisboa

**Job company/institute:** Instituto Superior Tecnico

**Application deadline:** 17 Setembro 2008

*(The Application's deadline must be confirmed on the Job Description)*

## 2. Dados de contactos da organização

### 2. Organization contact data

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**Organization/institute:** Instituto Superior Técnico-Instituto de Engenharia Mecânica

**Address:**

Av. Rovisco Pais, 1  
Lisboa - 1049-001  
Portugal

**Email:** [carlosmotasoares@dem.ist.utl.pt](mailto:carlosmotasoares@dem.ist.utl.pt)

**Website:** <http://www.idmec.ist.utl.pt/>

## 3. Habilitações académicas

### 3. Required education Level

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**Degree:** PhD - in related areas of the application field with scientific publications and previous research experience are required in the application field

**Degree field:** Engineering

## 4. Línguas exigidas

### 4. Required languages

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**Language:** English

**Priority:** Normal

**Reading:** Good

**Writing:** Good

**Comprehension:** Good

**Conversation:** Good

## 5. Experiência exigida em investigação

### 5. Required research experience

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**Main Research Field:** Engineering

**Research Sub-Field:** Mechanical engineering

**Years of Research Experience:** 3 years

## 6. Juri

### 6. Selection Committee

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**Name:** [Carlos A. Mota Soares](#)

**Name:** [Luís Braga Campos](#)

**Name:** [John T. McMullan](#)

**Name:** [Tony Atkins](#)

**Name:** [J.N.Ready](#)