

UNIVERSITÀ CATTOLICA DEL S. CUORE
Dipartimento di Matematica e Fisica “Niccolò Tartaglia”



12 hours with Mathematical Physics

SMART ELASTICITY

Soft- and pseudo-elasticity, memory effects, and other contraptions



Series of lectures

Paolo BISCARI - Politecnico di Milano

6-7-8/02/2012

Via dei Musei, 41 – 25121 BRESCIA (Italy)

Information: a.marzocchi@dmf.unicatt.it, a.musesti@dmf.unicatt.it

Web page: www.dmf.unicatt.it/smart

INFORMATION

The aim of the Course is to bring together people with different scientific backgrounds to learn and discuss an advanced subject in Mathematical Physics. The Course consists of 12 lectures of approximately 1 hour each; the style of the meetings is very informal.

Topics

- (1) Review of Continuum Mechanics
 - Kinematics (including piecewise regular deformations)
 - Constitutive equations (including objectivity and symmetry requirements)
 - Balance equations (including Cauchy and Piola-Kirchhoff stress tensors)
 - Elasticity and hyperelasticity
- (2) Elastomers and nematic elastomers
 - Nonlinear elasticity: rubber and soft tissues
 - Nematic elastomers: electromechanical interactions
 - Soft-elasticity and microstructured domains
- (3) Shape Memory Alloys
 - Crystalline solids, lattices and symmetries
 - Austenite-martensite transformations and energy wells
 - Twinning
 - Pseudo-elasticity and shape memory effect

Program

The lectures are organized as follows (tentative):

- Monday:
 - 3pm–6pm (with floating ☕ break)
- Tuesday:
 - 9.30am–12.30pm (with floating ☕ break)
 - Lunch
 - 3.30pm–6.30pm (with floating ☕ break)
 - Social Dinner
- Wednesday:
 - 9am–12.00 (with floating ☕ break)

Application

Those who are interested are kindly requested to write an e-mail to

a.marzocchi@dmf.unicatt.it and/or a.musesti@dmf.unicatt.it,

in order to help us find an appropriate lecture room. No participation fee is required.

Accommodation

Participants should make their own arrangements for accommodation. We suggest

Centro Pastorale “Paolo VI”

Via Gezio Calini, 30 - 25121 BRESCIA

Tel. +39 030 3773511

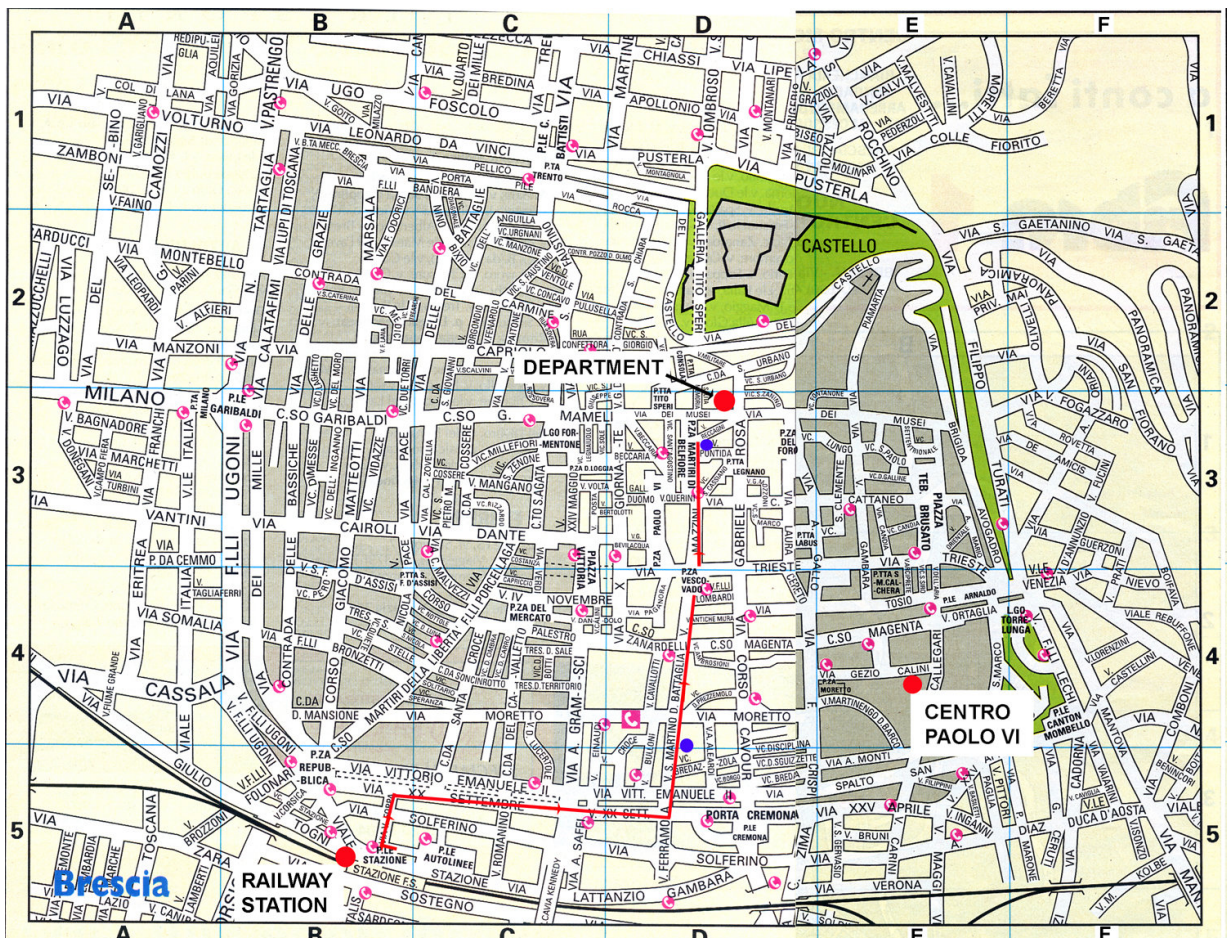
<http://www.centropastoralepaolovi.it>

Arrival

- *to get to the Department:* from the railway station, bus line n. 1 (direction “Mompiano”) or n. 2 (direction “Pendolina”) right in front of the station (tickets available at the neighbouring tobacconist’s); get off at “Belfiore”, then walk following the plan below (approximately 1 min.)
- *to get to Centro Paolo VI:* from the railway station, bus line n. 1 (direction “Mompiano”) or n. 2 (direction “Pendolina”) right in front of the station (tickets available at the neighbouring tobacconist’s); get off at “San Martino” and walk following the plan below (approximately 10 min.)

For information about bus lines, see also

<http://www.bresciamobilita.it/category/percorso-utenti/autobus/>



Bus lines in red; bus stops in blue.