FROM MICRO TO MACRO:
MICROSTRUCTURAL AND TEXTURE ANALYSIS FROM DIFFRACTION DATA

26-30 GENNAIO 2009

SESSIONS ARE BASED ON 4 HOURS PER DAY, WITH THEORY AND PRACTICE EVERY DAY
TRANINGS ARE WITH MAUD ON OWN-PC (IF AVAILABLE)
A FEW PC ARE AVAILABLE FOR USERS

UNIVERSITÀ DEGLI STUDI DI MILANO
HTTP://WWW.UNIMI.IT

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HTTP://WWW.GP.TERRA.UNIMI.IT

DETAILED PROGRAM

1 **Classical Rietveld Analysis - L. Lutterotti**
- Rietveld method in brief
- Measurements and corrections …
- the Ph(y) parameter of the problematic texture in Rieveld
- the microstructural aspect of the profile, how the deconvolution operates
- Le Bail extraction
- NL Least squares, genetic and simulated annealing

2 **Phase and Line Broadening analysis - L. Lutterotti**
- bulk and layered samples
- crystalline + amorphous
- isotropic-anisotropic
- line broadening due to size and microstrains
- Williamson - Hall plot
- size and microstrain distributions

3 **Classical Quantitative Texture Analysis - D. Chateigner**
- Quantitative Texture Analysis, measurements
- Corrections (defocusing, absorption, volume, fluorescence)
- Direct Pole Figures, inverse pole figures, Orientation Distribution Function
- Resolution methods for the ODF

4 **Classical Residual Stress Analysis - L. Lutterotti**
- Calculation of residual stress from measured strain
- characterization of macrostress
- study of second and third order stresses
- anisotropy of lattice strain response
- High pressure experiments
- Macrosocopic properties calculation

5 **Training from 2D images - L. Lutterotti + D. Chateigner**
- TEM, Curved CPS, CCD images

PARTICIPATION IS LIMITED TO 25 STUDENTS FROM ANYWHERE. WITH 15 PLACES RESERVED
FOR STUDENTS COMING FROM THE UNIVERSITY OF MILAN

MORE INFO ON
HTTP://USERS.UNIMI.IT/MZUCALI/DIDATTICA/TEXTURECOURSE2009.HTML