

Project acronym: **MULTIMAT**

Project ID (6 digits): **505226**

Project Participant: EMAT (Electron Microscopy for Materials Science), University of Antwerp

NAME, first name	Nationality	Previous place of work
BARTOVA Barbora	Czech	Institute of Physics, ASCR Prague, Czech Republic

Start date	Duration	Category	Place	Country
1.1. 2006	24	ER	EMAT, University of Antwerp	Belgium

#### Education

Since 2006 Postdoc researcher at EMAT, University of Antwerp

2003 – 2005 Institute of Physics ASCR, department of Metals

2000 – 2005 Institute of Chemical Technology Prague – doctoral studies, Faculty of Chemical Technology, Chemistry and Technology of Materials, PhD. Thesis – Properties of rapidly solidified aluminium alloys

I completed training on HRTEM as well as introduction to the model building and images simulation done by commercial software packages CrystalKitX and MacTempas.

Close cooperation with partner at the Institute of Physics ASCR, especially with Silvia Ignacova, is proceeding. Our goal is finding the optimal condition for heat treatment of the  $\text{Co}_{38}\text{Ni}_{33}\text{Al}_{29}$  shape memory alloy produced by Bridgman method, to obtain functional material. I am responsible for characterization by means of different microscopy techniques (SEM, CTEM, HRTEM).

Since the start of my contract I participated at the project meeting in Cambridge, United Kingdom (March 2006) and ESOMAT conference in Bochum, Germany (7<sup>th</sup> European Symposium on Martensitic Transformations and Shape Memory Alloys, September 2006).

We described as received  $\text{Co}_{38}\text{Ni}_{33}\text{Al}_{29}$  shape memory alloy and we continue our work with annealed samples.

Multimat project gave me an opportunity to travel a lot for scientific meetings as well as visiting the lab of our collaborators from Glasgow, where I have spent 1 month in total. Our paper on CoNiAl shape memory alloy was accepted for publication in Acta Materialia journal. Third team who participated to the paper was Prague. Many thanks again to Nils Wiese, John N. Chapman and Silvia Ignacova. There is ongoing research on gamma phase.

### *Peer reviewed articles in journals*

B. Bartova et al. Microstructure of precipitates and magnetic domain structure in an annealed [Co<sub>38</sub>Ni<sub>33</sub>Al<sub>29</sub>](#) shape memory alloy, Acta Materialia, 2008, article in press

B. Bartova, D. Schryvers, Z. Yang, S. Ignacova, and P. Sittner: Microstructure and precipitates in as-cast Co<sub>38</sub>Ni<sub>33</sub>Al<sub>29</sub> shape memory alloy, Scripta Materialia 57 (2007) 37–40 (team 1, 10)

### *Conferences*

Bartova B., Schryvers D., Yang Z., Ignacova S., Sittner P.: Lattice structure and correspondence of Co-rich precipitates in as-cast and annealed Co-Ni-Al shape memory alloy, 8th Multinational Congress on Microscopy (8MCM), Prague, Czech Republic, June 17-21, 2007, lecture (1, 10)

Bartova B., Schryvers D., Van Humbeeck J., Firstov G.S., Koval Yu.N.: Microstructure of Ni<sub>3</sub>Ta high temperature shape memory alloy, 8th Multinational Congress on Microscopy (8MCM), Prague, Czech Republic, June 17-21, 2007, poster (1)

Bartova B., Schryvers D., Yang Z., Ignacova S., Sittner P.: Hexagonal Co-rich and L1<sub>2</sub> ordered precipitates in annealed Co-Ni-Al shape memory alloy, E-MRS Fall Meeting, Warsaw, Poland, September 17-21, 2007, lecture (1, 10)

Bartova B., Schryvers D., Van Humbeeck J., Firstov G.S., Koval Yu.N.: Microstructure, martensitic transformation and shape memory effect in Ni<sub>3</sub>Ta – novel high temperature SMA, E-MRS Fall Meeting, Warsaw, Poland, September 17-21, 2007, poster (1)

May 14-June 3 2007, November 2007

Department of Physics and Astronomy, University of Glasgow  
Lorent microscopy on CoNiAl shape memory alloys.

Cooperation with Nils Wiese, Steven McVitie and John Chapman