

## Professor Tomas Polcar

### CV SUMMARY

Tomas Polcar graduated at the Czech Technical University in Prague with a master thesis focused on the design of a hot-water boiler with combustion of fresh wood with a nominal power of 10 MW. However, he switched his activity and started his PhD studies dealing with wear-resistant coatings. Apart from magnetron sputtering of thin films and optical emission analysis of the plasma, the main aim of his PhD study was the mechanical and tribological testing of hard coatings.

He participated in several research activities during the PhD study, particularly two industrial projects supported by Ministry of Industry of Czech Republic. The projects were closely connected with coating producers and end-users; the core objective was to analyze the tribological behavior of protective coatings at elevated temperature.

After finishing his PhD in 2005, he got a Post-Doc position in the European project Hardecoat and moved to the University of Coimbra, Portugal. He deposited tungsten oxinitride coatings by magnetron sputtering with reactive gas pulsing and analyzed their structure, mechanical, electro-optical and tribological properties. Moreover, he joined the group activities in the area of self-lubricating coatings and continued working on hard protective films.

In 2007, he split his time and activities between the University of Coimbra and the Czech Technical University in Prague. In Portugal, he was awarded by two projects from the Fundação para a Ciência e a Tecnologia – his proposals received the highest rating in the mechanical engineering panel. One of the projects is aimed at the improvement of DLC films interaction with oils by doping the carbon films with metals, whereas the other dealt with research on the deposition of self-lubricant coatings. In the Czech Republic, he was awarded by three projects dealing with low-friction films (Czech Science Foundation), protective coatings for bio-applications (Ministry of Industry) and wear resistant CrAlSiN films (Grant

Agency of the Academy of Sciences of the CR). He received as well three Development Projects from Ministry of Education and in January 2009 launched his research group based at the Czech Technical University.

Nowadays, he deals with all subjects referred to above. Moreover, he has recently joined activities in two other areas: protective decorative Al-O and Al-N films doped by Au/Ag/Cu (surface plasmon resonance effect), and thin elastomer films for micro-positioning systems.

T. Polcar published his first peer-review paper in 2005; he has 36 papers now (31 SCI Expanded), mainly as principal investigator.