

Djordje Drobnjak – an Admirable Life



Our teacher, Professor Djordje Drobnjak, died in late April 2017. He died quietly, as he had lived. We, his students and collaborators, took two and a half years to collect our contributions to this memorial issue of the journal *“Metallurgical & Materials Engineering”*. Our modest tribute expresses our gratitude to Professor Drobnjak for his teaching numerous classes of students at the Faculty of Technology and Metallurgy (FTM), University of Belgrade and for his excellent research in physical metallurgy.

Djordje Drobnjak was born in 1934 in Čuprija, then Kingdom of Yugoslavia. He graduated from High School in Belgrade, then enrolled at FTM's Department of Metallurgy where graduated in 1959. Scholarship from the Institute of Nuclear Sciences at Vinča led to his employment there. He was a staff member at the Department of Reactor Materials until 1972. He spent one year at the Argonne National Laboratory near Chicago, USA. He received a doctorate at the FTM's Department of Physical Metallurgy (DPM) with a dissertation titled *“Mechanism and Kinetics of $\beta \rightarrow \alpha$ Transformation in Uranium”* in 1966. He was a postdoctoral trainee at the University of Windsor, Windsor, Canada.

Professor Drobnjak stayed at the DPM from 1972 until retirement, rising from assistant to full professor, the rank he achieved in 1988. He taught Physical Metallurgy. He served as a visiting professor at the Carleton University, in Ottawa, Canada in 1979-80, and the next academic year at the Department of Production Mechanical Engineering, University of Novi Sad, Serbia.

Professor Drobnjak's main research interests in physical metallurgy covered physics of strength and plasticity, as well as fracture mechanics of metals and alloys. He wrote *“Physical Metallurgy - Physics of Strength and Plasticity”*, published by FTM in 1986. This excellent textbook now in third edition, is used not only at FTM, but for teaching at other universities in former Yugoslavia. He directed his coworkers in completing approximately ten master's theses and as many doctoral dissertations.

Professor Drobnjak's broad and productive research can be divided in two phases. At Vinča Institute, he studied mechanisms and kinetics of phase transformations in uranium alloys. Lately, in the focus of his research was the interdependence of composition, thermomechanical processing, structure on properties of metallic materials. His major scientific contribution are his publications regarding discontinuous yielding, static and dynamic strain age hardening of non-ferrous metals and steel.

In his professional work, Professor Drobnjak managed numerous projects aimed at solving technological problems in industrial production and developing industrial processes for producing microalloyed steels, forming steels, machining brass, multilayer materials and other metallic materials. He authored and coauthored 90 publications.

Professor Drobnjak served one mandate as elected chairman of the DPM. He was a member of the Scientific Board of the Serbian Chemical Society and of the Scientific and Professional Board of the Yugoslav ETAN conference, inorganic materials section.

I first met Professor Drobnjak when I was a beginning researcher at the Vinča Institute. He had just returned from Argonne National Laboratory. A handsome, black-haired young man, but rather quiet and somewhat formal in demeanor, he at first did not seem prone to making close relationships. As time passed, I got to know him better. He was reticent, but had a sensitive soul and a warm heart. Above all, he was an honorable man. We started as colleagues. He served as director of my doctoral dissertation and mentor. We became close friends. I did not address him as “Dr. Drobnjak”, but by his nickname – Djoka. Later, when he moved to FTM, I called him “Prof”. In our collaboration, Djoka taught me how to plan and execute research projects, to interpret results, and, finally, to write scientific papers for publication. He insisted on precise writing, devoid of improvisations. He conveyed the same attitude to his other coworkers as well. He kept abreast of current advances in physical metallurgy.

When Djoka was in his prime, he became a victim in a serious traffic accident. Resulting injury greatly affected his career and weakened his health thereafter. Despite the handicap, he made an impressive career, and was esteemed throughout former Yugoslavia. I knew him well. I believe that, had he not been injured, his career would have developed even more than it had, and his private life would have gone differently.

Doctoral candidate and mentor usually continue working separately after the doctorate. Djoka and I did not. After our professional relationship was completed, our friendship continued. He enjoyed talking about professional matters, articles that he read, and manuscripts he reviewed. I would occasionally tease him, saying: “Prof, you care only about your dislocations and microalloyed steels”. In fact, he had many other interests. He has read extensively, especially historical novels and fiction. He was very fond of sports, especially football. As a young man, he was a noted player with the team “*Belgrade*”, named after the capital city, and located in its Karaburma district.

A group of us, retirees from FTM and the Vinča Institute, used to meet at the café nicknamed “*At Toza the Greek’s*”. The above photo was taken at that spot. Over beer, we discussed world politics, football events, and other topics. Djoka was the main protagonist of these gatherings, which continued almost until his departure.

The meetings are gone, and so is “*At Toza the Greek’s*”. Some other “*Toza*” might open somewhere, but Djoka Drobnjak’s departure, however, is an irreparable loss for all who knew him closely and who respected and loved him.

Milan T. Jovanović