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Instituto de Ciencia y Tecnología de Polímeros

From

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To

Prof. Martin Kubala
Dean of Faculty of Science, Palacký University Olomouc,
17. listopadu 12, 779 00 Olomouc,
Czech Republic

In Madrid, 15th September 2025

Letter of recommendation for Associate Professor Karolina Siskova

Dear Prof. Kubala,

Herewith I express my full support for the promotion of Assoc. Prof. Dr. Karolina Siskova to Full Professor at the Faculty of Science, Palacký University Olomouc. Karolina is a renowned scientist that has amply demonstrated to possess all qualities and track record required to assume a full professor position at this excellent institution.

Long ago, we met in the laboratories of prof. Nguyen and prof. Bazan (my close collaborator) at the University of California at Santa Barbara in the United States of America. I have been working in the field of polymer chemistry and nanohybrids, while Karolina's expertise lies in optical spectroscopy and metal nanostructure synthesis, characterization, and application. We decided to collaborate and connect our research goals. Another point which combined us immediately, was French language that we practiced in the United States of America to keep it fresh in our minds.



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In 2012, Karolina invited me to visit her in the Czech Republic in her former working place, Regional Centre of Advanced Technologies and Materials, Palacký University Olomouc. Then, she visited me at my home institute in Madrid and saw our laboratories and equipment. Thereafter, one of the PhD students whose consultant was Karolina, came into my labs and conducted research on hydrogels. Unfortunately, the student did not continue the topic when coming back to the Czech Republic and Karolina went on maternity leave with twins soon.

After carrying out Karolina's family duties and performing teaching activities, we met again at the 11th International Conference on Advanced Materials and Processing, held in Edinburgh at the beginning of September 2017. Karolina presented her research by giving a worthy talk entitled "Interaction of nanoparticles with amino acids and a physiologically important model protein studied by spectroscopic techniques". At that time, we restarted our scientific collaboration: my team prepared nanohybrids containing plasmonic nanoparticles as core and two different types of thermo-responsive and one non-responsive polymer as shells. Karolina tested the spectroscopic performance of these new nanohybrid systems, namely by surface-enhanced Raman scattering spectroscopy (SERS) using two excitation wavelengths and three different temperatures. It turned out that besides the excitation laser line and temperature controlled during SERS measurements, sizes of nanoparticles and the thickness of the smart polymer shell belong to crucial factors influencing the final SERS performance. We also revealed that nanohybrids are often non-active as SERS platforms although they possess strong surface plasmon excitations and a bunch of scientific literature envisage them for SERS spectroscopy. To prove the idea, a new set of nanohybrids was prepared and investigated. Covid pandemia and Karolina's second career break due to maternity leave prolonged the finalization of our joint manuscript which is still under review after our revisions in *Spectrochimica Acta A*, Elsevier (Q1 ranked journal in Spectroscopy).

Based on the above-mentioned, I am trying to show that Karolina is a very careful scientist who is not working for admiration and not seeking sensation but rather wants to understand the nano-systems until detail and to optimize their behavior in a particular direction prior to any publishing. This is also obvious from her very recent letter-to-the-editor published in *ACS Nano* (doi: 10.1021/acsnano.4c02501), a highly valued journal in Nanoscience & Nanotechnology (D1), Materials Science – multidisciplinary (D1), Chemistry – physical (D1),

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Chemistry – multidisciplinary (D1). In short, I value her highly as a colleague and trust her results without reservation.

Assoc. Prof. Karolina Siskova published more than 55 scientific contributions, achieved h-index of 22, and received around 1912 citations (based on Web of Science). She works in the field of optically active metal nanostructures and multifunctional nanocomposites applied in environmental and biomedical research domains. As far as I know, Karolina has her own international research team composed of five post-docs (three of them are foreigners: Brazilian, Italian, Indian), four doctoral students (two of them are foreigners), and two undergraduate students. Two post-docs of her team were awarded by Marie Skłodowska-Curie Action Operational Program of Johannes Amos Komenský (OP JAK MSCA) which is a prestigious grant. Till now, 21 students defended their final theses under the guidance of Assoc. Prof. Karolina Siskova successfully: 2 PhD Theses, 15 Diploma Theses, 4 Bachelor Theses. I know that Karolina taught many lectures and courses dealing with nanomaterials, physico-chemical characterization of materials, and spectroscopy at three departments of Palacký University Olomouc, such as at the Department of Physical chemistry (2009 – now), Biophysics (2017 – 2021), and Experimental Physics (2017 – now). In 2014, she became Associate Professor of physical chemistry. Recently (December 2023), she has been awarded for her pedagogical activities in category Physics at Faculty of Science, Palacký University Olomouc.

Together with me, she served as a topic editor in Nanomaterials, International Journal of Molecular Sciences, Materials, Polymers, Nanomanufacturing. The topic was “Functional surface modifications of nanostructures”. She also served as the guest editor of two scientific special issues of Nanomaterials entitled “SERS/SERRS-active nanostructures and nanocomposites” and “Preparation and application of noble metal and semiconductive nanoparticles”. Karolina received several certificates as a valuable reviewer – e.g. from the American Chemical Society and from Elsevier (Science of the Total Environment). Recently, she has become a panelist at Czech Science Foundation, a very prestigious position for any Czech scientist.

Since we would like to strengthen our collaboration, we submitted pre-proposals for M-ERA.NET project (which is for research and innovation on materials and battery technologies,

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supporting the European Green Deal) together with our Turkish colleague, Prof. Levent Parali, and Assoc. Prof. Jiří Pechoušek in May 2024 and resubmitted a polished version of the pre-proposal in May 2025. Currently, we are waiting for the results of this year's call and based on it, we (Karolina and I) either jointly apply for a Synergy grant, or not. We, Karolina and I, also submitted our proposal for I-LINK projects (this is a project supporting collaboration and travelling between the institutions from Spain and elsewhere) in June 2024 and resubmitted in June 2025. Assoc. Prof. Karolina Siskova has gained several Czech grants already – awarded by Czech Science Foundation, by Ministry of Health of the Czech Republic, and by Ministry of Youth, Education and Sports of the Czech Republic.

In summary, I have come to value Karolina Siskova's scientific judgement and integrity very highly. It has been a pleasure to work with over several years. I think her CV is very impressive for someone still at a relatively early career stage. Her application, therefore, has my strongest support.

Please do not hesitate to contact me if you need clarification on any of the points I have raised above, and/or in case of any further questions.

Yours sincerely,

Prof. Nekane Guarrotxena