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To whom it may concern

This Reference Letter is provided at the request of Dr. Jaroslav Řeháček, who has asked me to serve as a reference on his behalf. It is my understanding that Dr. Řeháček is being considered as a candidate for a Full Professor position at Katedra optiky. Please, be advised that the information contained in this Letter is confidential and should be treated as such.

I first met Dr. Řeháček in 1993, when he was a Honors student under the direct supervision of Prof. Jan Peřina. I was spending that year on a Sabbatical Leave at Palacky University. Although we did not interact much, his work on quantum directional couplers was already very much appreciated.

Shortly after that, Dr. Řeháček started to actively cooperate with Prof. Hradil at the earlier stages of quantum state estimation. Actually, both of them can be rightly considered as founders of this modern trend. The cherry on the cake of Dr. Řeháček's achievements is the book "*Quantum State Estimation*", jointly edited with Dr. Matteo Paris and published by Springer in 2004. This book is the only comprehensive survey of most of the theoretical and experimental accomplishments in the field (by the way, I would be certainly pleased with a second updated and modernised edition).

There are many outstanding contributions of Dr. Řeháček. He was involved in the elaboration of the Singapore protocol, which includes the minimal tomography of a qubit [J. Řeháček, B.-G. Englert, D. Kaszlikowski, Physical Review A 70, 167903 (2004)], in my view, quite an original and important result. He also contributed to the full characterization of qutrits generated in biphotons with orbital angular momentum [G. Molina-Terriza, A.

Vaziri, J. Řeháček, Z. Hradil, A. Zeilinger, *Physical Review Letters* 92, 167903 (2004)], a pioneer experiment in exploiting the capabilities of that variable. He also is a coauthor of one of the ground breaking papers in the concept of time multiplexing for photon-number resolving detection of quantum states [J. Řeháček, Z. Hradil, O. Haderka, J. Peřina, M. Hamar, *Physical Review A* 67, 061801 (2003)], a technique that was later implemented in the group of Prof. Walmsley and has become one of the most powerful tools in modern single-photon technologies.

Anyway, the strong point of Dr. Řeháček is tomography, where he has contributed with a number of most interesting proposals, such as biased schemes, fitting data patterns, maximum likelihood combined with maximum entropy, or incomplete state estimations, to cite only a few relevant examples.

Before going further on, I wish to stress one thought. Nowadays, we are living at the peak of bibliometrics evaluation: everything is pervaded by h -index and notions like that. Even if the records of Dr. Řeháček hint at excellence, the difficulty and subtlety of his field does not always allow for highly cited works. However, we all know (I hope!) that such a procedure would not necessarily do justice. The individual evaluation by other scientists is the right way to decide about the excellence of a candidate. And I can ensure you that anyone that has been involved in a quantum estimation problem knows of the scientific performance of the applicant.

Concerning my own collaboration with Dr. Řeháček, we have been involved in a number of amazing projects. I would like to comment on two of them: first, is the combination of time-multiplexed detectors with the powerful tool of fitting data patterns (which is tantamount of a direct and simple quantum calibration of the detector). With the collaboration of the experimental group of Prof. Christine Silberhorn, in Paderborn, we have demonstrated the unique capabilities of the method. As a second project, we have proposed to using quantum tomography to improve classical sensing: from optical resolution to wavefront sensors. The role played by Dr. Řeháček in the development of these projects has been crucial. Besides, his amazing numerical skills have been pivotal in getting results that are attracting the attention of the international community.

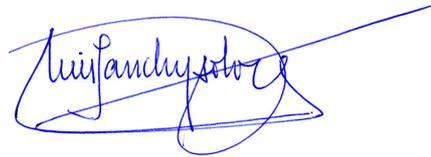
During these years, I had the opportunity of discussing and working together many problems. I must admit that he really impressed me by his competence in providing intuitive physical interpretations of abstract and sophisticated problems. He has a special ability in catching the drawbacks of any proposal, and always points out the weak points of the arguments. I would rate his overall performance as extremely brilliant.

As for his personal skills, Jarda always brings his research efforts to the fullest possible completion. He is really a hard and intensive worker. He is a very nice fellow and his stamina in pursuit of research excellence is literally amazing.

To sum up, I would highly recommend Dr. Jaroslav Řeháček as a perfect candidate for a Professor position. I am sure that he will be a very positive addition to your Institute.

Do not hesitate to contact me if you would like to discuss this any further.

Cordially yours,

A handwritten signature in blue ink, reading "Luis L. Sánchez-Soto". The signature is written in a cursive style and is enclosed within a blue oval shape. A long, thin horizontal line extends from the right side of the oval.

Prof. Dr. Hab. Luis L. Sánchez-Soto, FSRPS
Professor of Physics
Head of Quantum Optics