De Oliveira et al. reply: First, we would like to apologize for not mentioning the results presented by Agåker *et al.*[1] in our recently published Letter[2]. Although we mentioned the theoretical study of Yin *et al.*[3] in a previous paper[4], we were unaware of these recent experimental achievements.

Agåker *et al.* raise some interesting points that we would like to clarify here. Concerning the reflectivity of the roof-shaped reflectors in our instrument, it is indeed difficult to go far below a wavelength of 40 nm (although 30 nm is still manageable with the undulator we use at the SOLEIL synchrotron). However, the general concept of our spectrometer does not rely on the precise 45° grazing incidence shape of the reflectors. As mentioned in a previous study[5], the roof angle (and therefore the incidence angle) is a free parameter that can be chosen in the instrument design to target a specific wavelength range. The reflecting surface can also be chosen accordingly. In our present set-up[2], we used a 45° grazing angle and an SiC coating on silica as an optimized configuration for covering the vacuum-ultraviolet range (40–250 nm). However, the same principles could be used to design a system with 20° grazing incidence and silicon reflectors for high-resolution spectroscopy down to around 20 nm (~60 eV). Note that scanning control could be achieved by exactly the same system as in the present instrument. Provided that the optical elements meet the tight optical specifications required to reach such a wavelength, the expected resolving power would be, as in the present vacuum-ultraviolet instrument, in the 10^6 range. This could be used, for example, to provide data on doubly excited helium.

Another challenge is linked with the applicability of this technique to emission spectroscopy. Our present system allows for the collection of high-resolution emission spectroscopy data, as was mentioned at the end of our recent Letter[2]. In fact, the fundamental limitation of such experiments lies in the requirement of high source luminance. Emission spectroscopy was demonstrated with an older prototype of this instrument, in the visible to near-ultraviolet range, with a mercury arc lamp[6]. It is also worth mentioning that proof-of-principle experiments showing the extension of Fourier transform spectroscopy to short wavelengths were reported in 2004 and 2005, using a soft-X-ray laser (wavelength of 13.9 nm)[7] and a high-harmonic-generation source[8].

Finally, we would like to stress that the major purpose of our recent Letter[2] was to report on a unique laboratory instrument that not only has unprecedented resolving power and multiplex wavelength detection, but also is available to a large user community[9,10] for investigating photoabsorption processes involving valence and inner-valence shell excitation in the vacuum-ultraviolet range. This range is of great interest to those conducting research in astrophysics and upper-atmosphere-related sciences. ❐

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