Patrick Georges received his engineering diploma from the École Supérieure d'Optique in 1985, his PhD in laser physics 1989 and his Habilitation in 1998. He is a CNRS research scientist and is working at the Laboratoire Charles Fabry from the Institut d'Optique at the Université Paris-Saclay (France).
He is the leader of the Lasers research group (20 members, including 12 PhD students). His research focuses on the development of new laser sources and their applications, with a particular interest in ultrashort lasers and nonlinear effects. He is Fellow from Optica (2006) and from EOS (2014). He has served in several international conferences, such as CLEO Europe (Program and General Chair) and Europhotons (General Chair). He has more than 330 publications in peer-reviewed journals, 70 invited international conferences,14 patents and a h-factor of 58 (WoS). From 2015 to 2025, he was the director of the Laboratoire Charles Fabry.
He is deeply involved in technology transfer to industry and has developed a close collaboration with the French company Amplitude since 2012 by creating a joint research laboratory.

Publications list: https://cv.archives-ouvertes.fr/patrick-georges

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"Development of high energy, high repetition rate ns ytterbium lasers for lidar applications"

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Abstract :

Lidar instruments sensitivity strongly relies on the used lasers whose specifications are linked to the targeted observation.
In the context of global warming, trace gas detection technics based on the differential absorption method (DIAL) require very specific wavelength in the near/mid-IR, in line with the absorption lines of the targeted species. For greenhouse gases (H_2O, CO_2, or CH_4), Backward Optical Parametric Oscillator (BWOPO) based on ppKTP is a promising, simple and robust nonlinear frequency converter to produce specific ON and OFF IR wavelengths by slightly tuning the 1 µm wavelength of the ns high repetition rate multi-mJ pump laser
In the context of climate change caused by human activities, aircraft manufacturers are developing new airplanes with reduced kerosene consumption. To achieve this, they design new wings with lower drag, but which are more sensitive to vertical gusts. To measure the vertical component of the wind up to 300 meters ahead of the aircraft, lidar systems are considered. High-energy, high-repetition-rate, narrow-linewidth UV ns lasers that are robust against vibrations are currently under investigation for this application.
I my presentation, I will present the concept of 1 µm hybrid lasers based on ytterbium doped fiber amplifiers followed by bulk Yb:YAG amplifiers and by nonlinear stages in order to address these two applications. This work is performed in close collaboration with ONERA, the French Aerospace Lab.