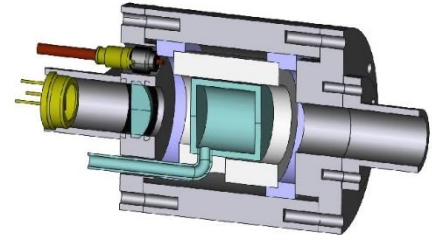


Post-doc and PhD positions @ INRiM

At INRiM, the Italian National Metrology Institute based in Turin, we have a research activity in the field of vapor-cell atomic clocks. Our research is focused on the POP (Pulsed Optically Pumped) technique, that allows the atoms to experience very low light-shift compared to continuous-wave techniques [1]. The POP clock is a state-of-the-art compact Rb-cell clock, both in the short- and in the long-term stability, thanks to the pulsed laser pumping and to the custom low-noise electronics, based on a digital approach.



Available topics: **1)** Novel interrogation techniques to actively cancel the residual light-shift and improve the robustness of the prototype [2]. **2)** Short-term improvement/analysis with the introduction of a new narrow-linewidth frequency-doubled fiber laser. **3)** Progress in the miniaturization of the setup (with microwave loaded cavity and novel buffer-gas mixtures) [3].



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For graduate students, we have the interesting opportunity of a **PhD program in Metrology** <http://dottorato.polito.it/en/home>, (very well!) co-founded by Politecnico di Torino. Applications are open until May 13 and the program will start in November 2021.

As a group, we also offer a **post-doc position** for a physicist or engineer interested in the field of vapor-cell clocks and digital-electronics methods.

Contacts:

You can visit the group website: <https://labafs.inrim.it/rb-cell-clock>,

Or write to Salvatore Micalizio (s.micalizio@inrim.it) for further informations.

Further references:

[1] S. Micalizio, C. E. Calosso, A. Godone, and F. Levi, "Metrological characterization of the pulsed Rb clock with optical detection," *Metrologia*, 49(4), 425 (2012)

[2] M.A. Hafiz et al. "Protocol for light-shift compensation in a continuous-wave microcell atomic clock", *Physical Review Applied*, 14(3), 034015 (2020)

[3] M. Gozzelino et al., "Loaded Microwave Cavity for Compact Vapor-Cell Clocks," in *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control*, 68(3), 872-879, (2021)