Questions:

1. What are realistic expectations for future seeded FELs ?
    1. *All the facilities are considering external seeding or self-seeding in some form. The offer in terms of coherent light from seeded FELs is going to grow in the next years. Hard X-rays, only self-seeding.*

2. Can we extend the photon energy range to include Fe (707 eV), Cu (933 eV), and Zn (1,022 eV) edges while preserving the features of a seeded FEL?
    1. *Studies for externally seeded FEL configurations between 2-4 nm at SwissFEL, 1-2 nm at LCLS-2 and SXFEL/SHINE (Shanghai), FLASH and European XFEL down to 2 nm, FERMI*
    2. *Self seeding configurations are available at all the hard-xray facilities, PAL, SACLA, LCLS-II, XFEL. First encouraging results from XFEL*

Questions:

1. Not just photon energy ! Seeding improves synchronization, coherence, control of the light properties, as duration and spectral resolution. Complementarity between seeding and SASE. Can we accept a loss of peak power to ensure improved light coherence via seeding ?
    1. *As to «synchtonization» can be overcome to some extent via a timing tool.*
    2. *Improved coherence, first & second order (Bonetti, Fawley) allow to get similar S/N with a lower peak power or limited statistics. Some discussion on this, probably because the conclusion is strongly «experiemnt dependent»*
2. Are there proof of principle experiments we should foresee to solve fundamental issues ?
    1. *IBS – ISR and EEHG debunching in a large dispersion chicane (R56 > 10 mm)**
    2. *Study of tolerances in beam alignment in EEHG at high harmonics order**
3. Can we share part of this scientific effort ? Are there common problems to solve?
    1. *Looking forward for collaborations for FERMI FEL-1 EEHG implementation**

** Discussions that followed after the workshop conclusion*

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See you in 2020