

Let's think about 4th-generation high-pressure synchrotron X-ray experiments

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Upgrade of the synchrotron X-ray facilities in the world from current 3rd generation to next 4th generation is one of the most important issues for considering our future of high-pressure synchrotron X-ray experiments. All the 4th generation synchrotron facilities including SPring-8-II in Japan adopt multi-bend achromat lattice, which will increase brightness by 100 times and will enable smaller beam size by decrease of horizontal emittance. Stronger X-ray intensity and smaller beam size are obviously benefit for high-pressure synchrotron X-ray experiments, and it automatically boosts level of current high-pressure synchrotron X-ray experiments. On the other hand, it is important to think about 'what is next generation high-pressure synchrotron X-ray experiments', which are challenge and/or impossible now. In this talk, I will talk about my opinions about two potential future experiments: (1) experiments on liquids and amorphous materials, and (2) experiments on inhomogeneous material such as rock.