



For Immediate Release
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Breakthrough on UV Laser Radiation Achieved at HKUST

Ultraviolet (UV) laser radiation at a record-setting short wavelength has been successfully generated from a nonlinear optical crystal at the Hong Kong University of Science and Technology. This important scientific achievement is the result of close research collaboration between the Physics Department at HKUST and the Fujian Institute of Research on the Structure of Matter.

Using the technique of second harmonic generation, tunable deep-UV laser radiation with a wavelength as short as 184.7 nm has been obtained. The previous world record of 205 nm was set in 1986. This major scientific advance makes the availability of table-top-size, deep UV-coherent light sources a distinct possibility in the near future.

Convenient deep-UV laser sources will have great impact on data storage, the encoding of grating structures in fibre optics for advanced telecommunication applications, sub-micron photolithography for high-density semiconductor device fabrications, laser chemistry (especially molecule splicing), as well as laser spectroscopies. Compact UV laser sources are also important for medical applications.

The experiment was made possible by the availability of a new UV nonlinear optical crystal developed by the research group of Professor Chuang-tian Chen of Fujian using the technique of molecular engineering. Experimental confirmation, as well as quantification of relevant material properties, was made possible by the use of a state-of-the-art tunable optical parametric amplifier system recently designed and constructed by the research group of Professor George K.L. Wong of the Physics Department at HKUST.

Future collaboration between the two groups to generate even shorter wavelength coherent UV light, as well as to develop practical UV laser devices for commercial applications, will be continued.

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