3D Designable Gel as an Advanced Functional Material

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3D printing of new materials is becoming cutting-edge technology in not only mechanical engineering but also material science. I am focusing on especially the 3D printing of gel materials. Based on the world-first 3D gel printing technology, our team aims to develop 3D gel printing system to realize free-shape design of soft and wet materials. We defined 'Designable Gels' as revolutionary gels whose molecular structure, shape, and advanced functions can be designed by users. At the same time, analysis technology will be immediately used to guarantee the quality of manufactured gels. I believe the 3D gel printing system will be a useful tool to fuse material science and mechanical engineering. While there still exist some limitations around 3D printing speed, resolution and variety of materials, it will be soon overcome and the progress of the 3D printing will exponentially speed up, in accordance with the Moor's law. In soon future, people will start utilizing 3D printing of various materials personally to change life style and it will be new life style of personal manufacturing based on the 3D printing of advanced functional materials. Here I like to discuss the possibility of the exponential speed-up of 3D printing technology and its huge effect on our future life.