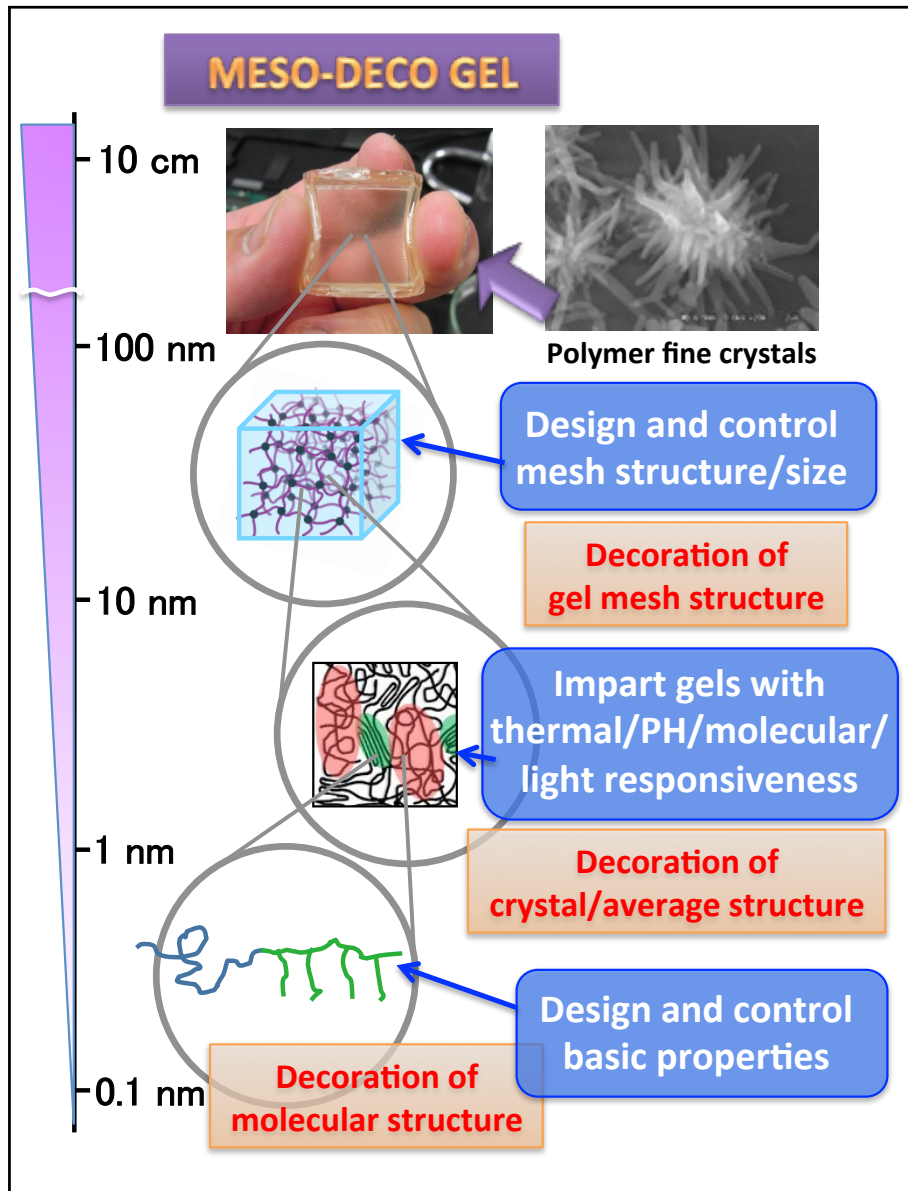


Meso-Deco GEM: Next Gel Engineering Materials Decorated with Fine Crystals

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Content:

Gels are environmental friendly and biocompatible soft materials. They are widely used as many kinds of products, such as cosmetics, water absorbent, refrigerant, cell-culture substrate, soft contact lens, drug delivery system, ion-exchange resin, desert greening, sludge disposal system, rechargeable battery, etc. New high-strength gels and transparent shape-memory gels were developed in recent years. This opened the way for gels to use as actuators in many fields like health, machinery, robot, electronics, and so on.

As shown in the left figure, I am conducting research on developing multi-functional and high-value added polymer materials by using one new method of hierarchical structure decoration at intermediate mesoscale from molecule/nano to micro/milli scale. This method is named Meso-Decoration (Meso-Deco). Particularly by introducing proprietary high-performance polymer fine crystals into gels, novel functional Meso-Deco gels are planned to create. Many functions, for example, thermal/light/PH/molecular responsiveness, strength, low frictional property, low adhesive property, are provided to Meso-Deco gels through inter-structure control at mesoscale.

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