

DSM Science & Technology Awards (SOUTH) 2008

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Multicompartment nanoparticles consist of at least two compartments of entirely different chemistry and physical properties. "Janus" particles, termed after the two-faced Roman god, are a special subtype due to their architectural feature of having two different sides. These particles allow the unique combination of desired properties within close proximity on one single particle, rendering them an ideal toolbox for nanotechnology applications and materials science. While their preparation remains highly challenging, their advantages prevail, e.g. addressing individual functionalities without significant interference between each other. Novel types of advanced biochemical sensors, drug-delivery vehicles, multicomponent storage and release devices, or highly surface-active particles can be constructed, thus bridging various disciplines from biochemistry, physics and materials science in an interdisciplinary manner. Looking out to the future, a multitude of current problems in biomedicine, materials science and other disciplines can efficiently be tackled by this emerging class of materials.

If you are in need of a catchy graphic, you may use the following.

This scheme shows Janus particles of different architectures.

