

# ADVANCED MATERIALS

## Supporting Information

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Light-Controlled Nucleation and Shaping of Self-Assembling Nanocomposites

*Marloes H. Bistervels, Marko Kamp, Hincó Schoenmakers, Albert M. Brouwer, and Willem L. Noorduin\**

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**Content:****1. Movie series 1, Light-controlled nucleation and growth****S1a: Precipitation of one nucleation site**

In this movie, the nucleation and growth of a single nanocomposite is presented. The movie consists of 87 frames that cover a timespan of 87 minutes real-time growth.

**S1b: Sequential positioned nucleation**

In this movie, the sequential nucleation and growth of two different shaped nanocomposites is presented. The blue frames with the green spot, shown prior to the frames of the growth of the nanocomposites, represents the projection of the light spot on the substrate. The yellow dashed lined circles in the following frames represent the projection of the UV light spot on the substrate during growth. The first part of the movie shows the growth of the helical-shaped composite and consists of 49 frames that cover a timespan of 190 minutes. The second part of the movie shows the growth of the coral-shaped composite and consists of 284 frames that cover a time span of 156 minutes.

**2. Movie series 2, Static shape contouring according to photomask****S2a: Static triangular light pattern**

In this movie, the nucleation and growth of a nanocomposite within a triangular irradiated light area is presented. Prior to the growth, a projection of the triangular irradiated light area is shown. The yellow dashed lined triangle in the following frames represents the projection of the UV light on the substrate during growth. The movie consists of 33 frames that cover a time span of 15 hours real-time growth.

**S2b: Static circular light pattern**

In this movie, the nucleation and growth of a nanocomposite within a circular irradiated light area is presented. Prior to the growth, a projection of the circular irradiated light area is shown. The yellow dashed lined circle in the following frames represents the projection of the UV light on the substrate during growth. The movie consists of 49 frames that cover a time span of 12 hours real-time growth.

**S2c: Static cross light pattern**

In this movie, the nucleation and growth of a nanocomposite within a cross-shaped irradiated light area is presented. Prior to the growth, a projection of the cross-shaped irradiated light area is shown. The yellow dashed lined cross in the following frames represents the projection of

the UV light on the substrate during growth. The movie consists of 330 frames that cover a time span of 5.5 hours real-time growth.

### **3. Movie 3, Dynamic light directed growth**

#### **S3: Drawing a line with light**

In this movie, the nucleation and growth of a nanocomposite with a moving light beam presented. Prior to the growth, a projection of the irradiated light spot is shown. The yellow dashed lined circle in the following frames represent the projection of the UV light on the substrate during growth. The movie consists of 223 frames that cover a time span of 47 hours real-time growth.