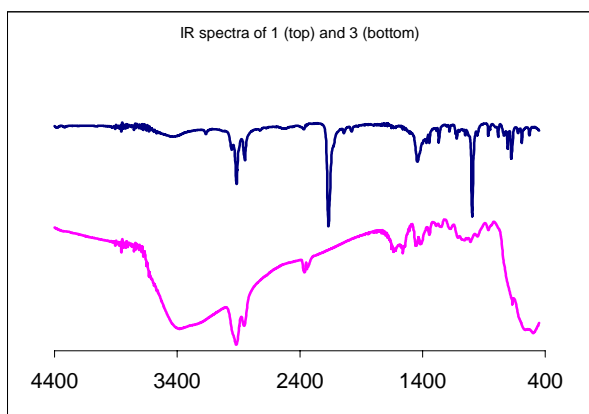


## Supplementary Materials

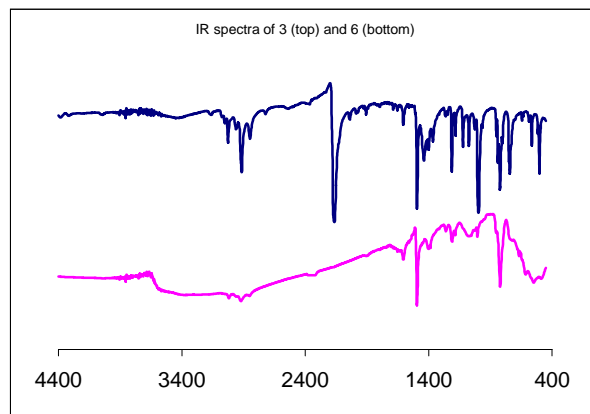
## Self-Assembled Tin-Based Bridged Hybrid Materials

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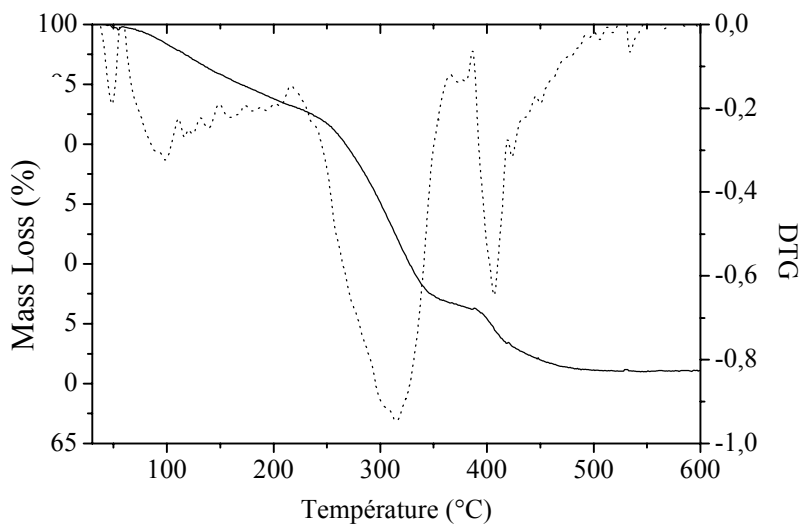
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**Figure 1.** IR spectra of precursor **1** and hybrid **3** (KBr pellet)



**Figure 2.** IR spectra of precursor **3** and hybrid **6** (KBr pellet).

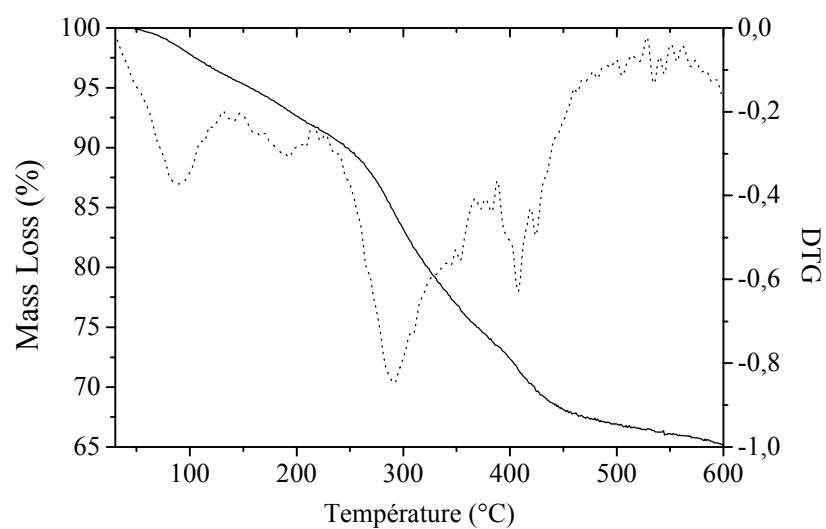


**Figure 3.** TGA-DTG data of hybrid **4**.

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Step	Temperature (°C)	Mass loss (%)	Detected species
I	50-105	5.7	H <sub>2</sub> O <sup>+</sup> , OH <sup>+</sup> , O <sup>+</sup> [adsorbed water]
II	225-365	17.6	C <sub>4</sub> H <sub>8</sub> <sup>+</sup> , C <sub>3</sub> H <sub>8</sub> <sup>+</sup> , CH <sub>3</sub> <sup>+</sup> , THF <sup>+</sup> [spacer: C <sub>4</sub> H <sub>8</sub> + THF]
III	375-475	5.6	C <sub>4</sub> H <sub>8</sub> <sup>+</sup> , CO <sub>2</sub> <sup>+</sup> , OH <sup>+</sup> , O <sup>+</sup> [spacer + structural water]

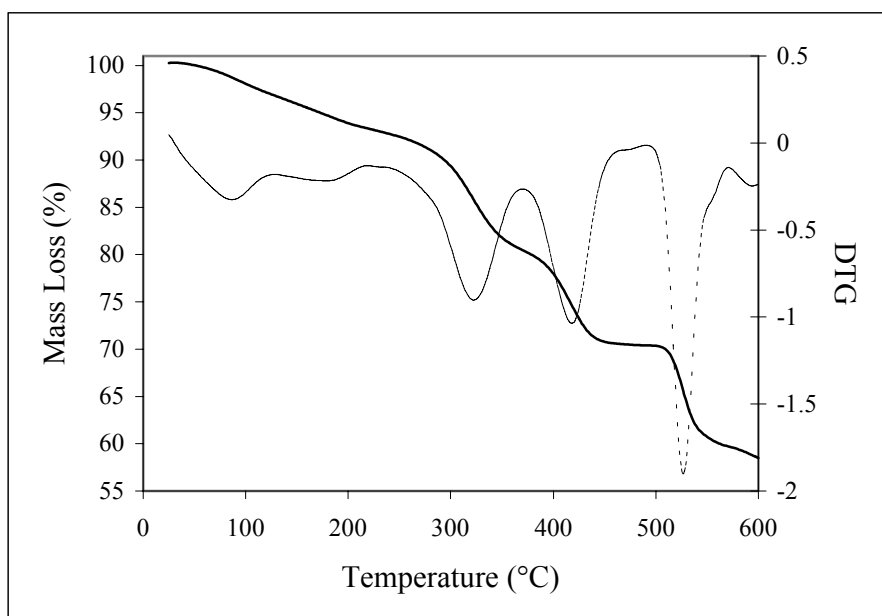
**Table 1** : Detected species for the thermolysis of **4**.



**Figure 4**. TGA-DTG data of hybrid **5**.

Step	Temperature (°C)	Mass loss (%)	Detected species
I	85-105	4.2	H <sub>2</sub> O <sup>+</sup> , OH <sup>+</sup> , O <sup>+</sup> [adsorbed water]
II	150-325	21.4	C <sub>2</sub> H <sub>2</sub> <sup>+</sup> , C <sub>3</sub> H <sub>6</sub> <sup>+</sup> , $\Phi$ CH <sub>2</sub> <sup>+</sup> , THF <sup>+</sup> [spacer : CH <sub>2</sub> $\Phi$ CH <sub>2</sub> + THF]
III	375-450	8.4	$\Phi$ CH <sub>2</sub> <sup>+</sup> , CO <sub>2</sub> <sup>+</sup> , OH <sup>+</sup> , O <sup>+</sup> [spacer + structural water]

**Table 2** : Detected fragments for the thermolysis of **5**.



**Figure 5.** TGA-DTG data of hybrid **6**.

Step	Temperature (°C)	Mass loss (%)	Detected species
I	85-105	3.5	$\text{H}_2\text{O}^+$ , $\text{OH}^+$ , $\text{O}^+$ [adsorbed water]
II	150-450	22.5	$\text{C}_2\text{H}_2^+$ , $\text{C}_3\text{H}_6^+$ , $\Phi\text{CH}_2^+$ , $\text{THF}^+$ [spacer + THF]
III	450-550	10.9	$\Phi\text{CH}_2^+$ , $\text{CO}_2^+$ , $\text{OH}^+$ , $\text{O}^+$ [spacer + structural water]

**Table 3** : Detected fragments for the thermolysis of **6**.

Micro-analysis data:

**4** : Anal. found: H: 3.06; C: 16.53; Sn: 68.07; O: 12.33. Anal. calc. for  $\text{Sn}_2\text{C}_4\text{H}_8\text{O}_3$  : H: 2.36; C: 14.07; Sn: 69.51; O: 14.06.

**5** : Anal. found: H: 1.96; C: 19.32; Sn: 57.87; O: 20.84. Anal. calc. for  $\text{Sn}_2\text{C}_8\text{H}_8\text{O}_2(\text{OH})_2$ ,  $\text{H}_2\text{O}$  or : H: 2.84; C: 22.58; Sn: 55.78; O: 18.80.

**6** : Anal. found: H: 3.39; C: 34.75; Sn: 47.00; O: 14.84. Anal. calc. for  $\text{Sn}_2\text{C}_{14}\text{H}_{12}\text{O}_2(\text{OH})_2$ ,  $\text{H}_2\text{O}$  : H: 3.21; C: 33.52; Sn: 47.32; O: 15.95.