### **ELECTRONIC SUPPLEMENTARY INFORMATIONS**

## Preparation of supported AuPd nanoalloys mediated by ionic liquid-

# like functionalized SBA-15: structural correlations concerning its

# catalytic activity

João Paulo Vita Damasceno<sup>a</sup>, Camila Marchetti Maroneze<sup>a</sup>, Mathias Strauss<sup>b</sup>, Fernando

Aparecido Sigoli<sup>a</sup>, Italo Odone Mazali<sup>a,\*</sup>

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#### **I. Figures**



**Figure S1**. <sup>13</sup>C CP/MAS NMR spectrum of the SBA-Imi<sup>+</sup> sample, with the free alkoxysilane ionic liquid-like representation and peaks attribution inserted in the graphic; Peaks labelled with A and B letters are referent to carbon nuclei from ethanol that remain to the silica surface after functionalization step.



**Figure S2.** <sup>29</sup>Si CP/MAS NMR spectra of the SBA and SBA-Imi<sup>+</sup>, as indicated by the internal legend.



**Figure S3.** TEM image from the SBA-Imi<sup>+</sup>-Au0.25Pd0.75 sample showing the particle analyzed by EDS.



**Figure S4**. Absorbance versus wavelength for the 4-NP reduction catalyzed by SBA-Imi<sup>+</sup>-Au0.75Pd0.25 material, showing the spectral change along time and the respective structures of the reagent and product.



**Figure S5.** Absorbance at 400 nm versus time for blank catalytic tests: (a) without solid; (b) SBA sample; (c) SBA-Imi<sup>+</sup> sample.

The spectra referent to SBA and SBA-Imi<sup>+</sup> materials are nonlinear curves because the solid catalyst and hydrogen gas production, derived from sodium borohydride reaction with water, cause light scattering that makes the absorbance value oscillate even with the absorption blank made with the dispersion.

#### **II. Tables**

**Table S1.** Apparent velocity constants for catalyzed reduction of 4-nitrophenol with the synthetized materials.

Material	k (298 K) / 10 <sup>-4</sup> s <sup>-1</sup>
SBA-Imi <sup>+</sup> -Au1.00 <sup>A</sup>	10.6
SBA-Imi+-Au0.90Pd0.10	17.8
SBA-Imi <sup>+</sup> -Au0.75Pd0.25	35.6
SBA-Imi <sup>+</sup> -Au0.50Pd0.50	82.0
SBA-Imi <sup>+</sup> -Au0.25Pd0.75	122.1
SBA-Imi <sup>+</sup> -Au0.10Pd0.90	119.6
SBA-Imi <sup>+</sup> -Pd1.00	117.6

<sup>A</sup>Data for SBA-Imi<sup>+</sup>-Au1.00 material was collected from 310 to 400 s, after the induction period.

The data from Table S1 were obtained from the fitted curves of the linearized absorbance (Ln) versus time, from 10 to 100 s, with 10 s of interval between each point (10 points). These velocity constants are apparent, so they are referent to the overall process.