

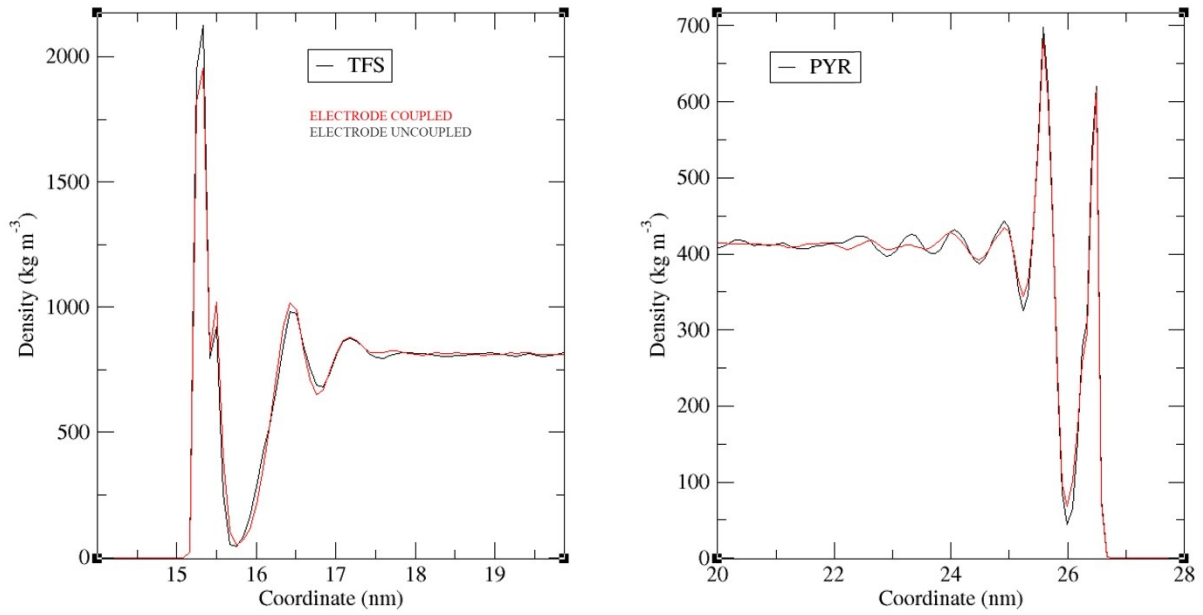
## **Investigating the asymmetry in the EDL response of C<sub>60</sub>/graphene supercapacitors**

Eudes Eterno Fileti<sup>1</sup> and Guilherme Colherinhas<sup>2,3</sup>

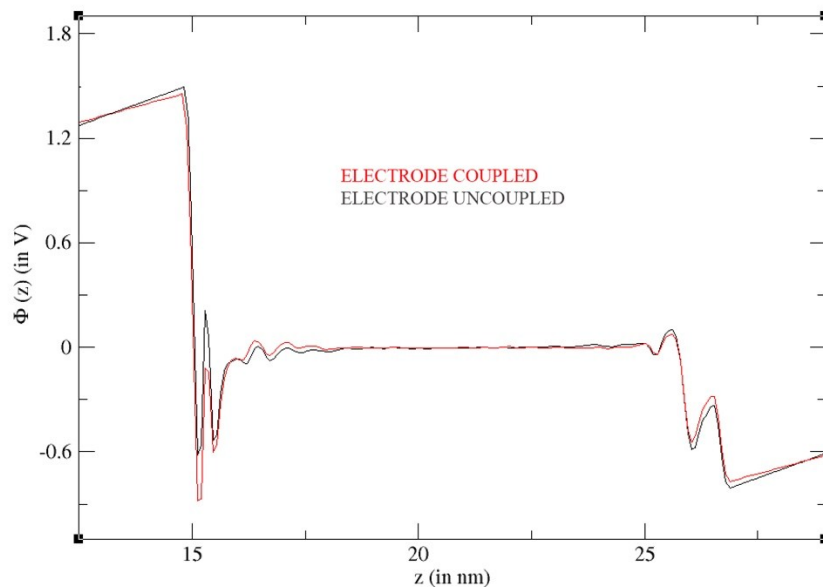
- 1) Instituto de Ciência e Tecnologia, Universidade Federal de São Paulo, 12247-014, São José dos Campos, SP, Brazil.
- 2) Departamento de Física, CEPAE, Universidade Federal de Goiás, 74690-900, Goiânia, GO, Brazil.
- 3) Instituto de Física, Universidade Federal de Goiás, 74690-900, Goiânia, GO, Brazil.

<b>PART 5</b>							
$\sigma$ ( $\mu\text{C}/\text{cm}^2$ )	$Q_{\text{Total}}$ on electrode (e)	80% $Q_{\text{Total}}$	20% $Q_{\text{Total}}$	Charge/atom-GRP	Charge/atom-GRP	Charge/atom-FUP	Charge/atom-FUN
1,6	2,35	1,88	0,47	4,51E-03	9,78E-04	1,13E-03	3,91E-03
3,2	4,69	3,76	0,94	9,03E-03	1,96E-03	2,26E-03	7,82E-03
4,8	7,04	5,63	1,41	1,35E-02	2,93E-03	3,39E-03	1,17E-02
6,4	9,39	7,51	1,88	1,81E-02	3,91E-03	4,51E-03	1,56E-02
8,0	11,74	9,39	2,35	2,26E-02	4,89E-03	5,64E-03	1,96E-02

**Table S1:** Worksheet showing details of how partitioning was performed. Initially we designate the charge density on the electrodes (first column). Then, we determine the total charge on the electrode, using its surface area. We partition the total charge in the desired fraction, in this case, 80% and 20%. The partial charge on each atom was calculated by dividing the portion of the total charge by the number of atoms. GRP, GRN, C60P and C60N are the components of the electrodes where the charges are positive and negative.



**Figure S1:** Mass density profile (in  $\text{kg m}^{-3}$ ) obtained in two different conditions: with both electrode and electrolyte completed to the thermostat (red line) and with electrode decoupled from the thermostat (only electrolyte coupled) (black line). This calculation refers to the charged PYR-TFSI supercapacitor with a charge density of  $4.8 \mu\text{C cm}^{-2}$ . At the left, the mass density of the anions on the positive electrode surface and at the right the mass density of the cations on the negative electrode surface.



**Figure S2:** Profile of electrostatic potential as a function of  $z$  distance (normal to electrode) for the  $\text{C}_{60}$ /graphene electrodes based PYR-TFSI supercapacitor at a density charge of  $4.8 \mu\text{C cm}^{-2}$ . Two conditions were compared, for both electrode and electrolyte completed to the thermostat (red line) and with electrode decoupled from the thermostat (only electrolyte coupled) (black line).