

## BIOGRAPHICAL SKETCH

### Sara Aldabe Bilmes

born September 3rd 1954 at Buenos Aires, Argentina.  
Divorced, 2 children: Irene (38) and Andrés (40) Bilmes

<http://www.qi.fcen.uba.ar/academicos/integrantes/profesores?id=14>

[https://www.conicet.gov.ar/new\\_scp/detalle.php?keywords=&id=21026&datos\\_academicos=yes](https://www.conicet.gov.ar/new_scp/detalle.php?keywords=&id=21026&datos_academicos=yes)



### Address:

Instituto de Química-física de Materiales, medio Ambiente y Energía (INQUIMAE);  
Departamento de Química Inorgánica, Analítica y Química-física,  
Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires  
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Buenos Aires  
Argentina

### Present Positions

- Full Professor Facultad de Ciencias Exactas y Naturales. Universidad de Buenos Aires (FCEN-UBA)
- Superior researcher National Research Council of Argentina (CONICET)
- Member of the Board Nanoandes
- Member of Administration Board Fundación Argentina de Nanotecnología
- Argentinian coordinator “Centro Argentino-Brasileño de Nanotecnología”, CABN/CBAN

### Studies

FCEN-UBA. Graduate in Chemistry. 1977

FCEN-UBA. Doctor in Chemistry. 1982.

Poitiers University. France. Electrocatalysis. Posdoc 1982

Düsseldorf University. Germany. Spectroelectrochemistry. Posdoc, 1987-1989.

### Scientific interests

Sol gel processes; Photocatalysis; Ordered mesoporous oxides; Materials with biological activity, Materials for drug delivery; Optical properties of nanostructures

### Awards

- Life Achievement Award International Sol-Gel Society, 2021

### Scientific production

- Original papers in peer-reviewed journals: 88
- Book chapters: 8
- Proceeding (extended articles) 6
- More than 2900 citations; h index = 30 (Google Scholar)
- More than 150 presentations in national and international meetings

### Last Relevant Publications

- *Enhanced photocatalytic properties of core@shell SiO<sub>2</sub>@TiO<sub>2</sub> nanoparticles*; S. Ullah, E. P. Ferreira-Neto, A. A. Pasa, C.C.J. Alcântara, J.J.S. Acuña, S. A. Bilmes, M. L. Martínez Ricci, R. Landers, T. Zampieri Fermino, U. P. Rodrigues-Filho; *Applied Catalysis B*, 179 (2015) 333-343
- *Structure and properties of ordered nanostructured oxides and composite materials*; M-L. Martínez Ricci, S.A. Bilmes; *The Sol-Gel Handbook Synthesis, Characterization, and Applications*, Wiley 2015

- *Microorganism mediated biosynthesis of metal chalcogenides; a powerful tool to transform toxic effluents into functional nanomaterials.* P. Vena, M. Jobbagy, S.A. Bilmes, *Science of the Total Environment*, 565, 2016, 804-810, DOI [10.1016/j.scitotenv.2016.04.019](https://doi.org/10.1016/j.scitotenv.2016.04.019)
- *Wettability, Photoactivity, and Antimicrobial Activity of Glazed Ceramic Tiles Coated with Titania Films Containing Tungsten;* D. Onna, K. M. Fuentes, C. Spedalieri, M. Perullini, M. C. Marchi, F. Alvarez, R. J. Candal, and S. A. Bilmes *ACS Omega* **2018** 3 (12), 17629-17636 DOI: [10.1021/acsomega.8b03339](https://doi.org/10.1021/acsomega.8b03339)
- *Diameter distribution by Deconvolution (DdD): Absorption spectra as a practical tool for semiconductor nanoparticle PSD determination.* Onna, D., Perez Ipiña, I., Fernández Casafuz, A., Mayoral, A., Ibarra, M. R., Bilmes, S. A., Martínez Ricci, M. L. *Nanoscale Advances*. **2019** 1, 3499-3505 doi:[10.1039/c9na00344d](https://doi.org/10.1039/c9na00344d)
- *Optimization of sensors based on encapsulated algae for pesticide detection in water.* A. Gosset, V. Oestreicher, M. Perullini, S.A. Bilmes, M. Jobbagy, S. Dulhoste, R. Bayard, C. Durrieu **2019** *Analytical Methods* 11; [10.1039/C9AY02145K](https://doi.org/10.1039/C9AY02145K)
- *Functionalized hierarchical wrinkled-silica spheres for laccases immobilization;* K.M Fuentes, L. L Coria-Oriundo, S. Wirth, S. A Bilmes; *J. Porous Materials*, 2021, 28 261-269; <https://doi.org/10.1007/s10934-020-00988-9>
- *Role of Rare Earth Elements and Entropy on the Anatase-To-Rutile Phase Transformation of TiO<sub>2</sub> Thin Films Deposited by Ion Beam Sputtering;* D.L.Scoca, F. Cemin, S.A. Bilmes, C.A. Figueroa, A. R. Zanatta, F. Alvarez; *ACS Omega* 2020, 5 (43), 28027-28036 <https://doi.org/10.1021/acsomega.0c03431>
- *Copper upcycling by hierarchical porous silica spheres functionalized with branched polyethylenimine: Antimicrobial and catalytic applications;* K.M. Fuentes, D. Onna, T. Rioual, M. A.Lago Huvelle, F.Britto, M. Simian, M. Sánchez-Domínguez, G. J.A.A. Soler-Ilia, S. Aldabe Bilmes, *Microporous and Mesoporous Materials*, 327, 111391, 2021; <https://doi.org/10.1016/j.micromeso.2021.111391>
- *Loading insoluble sulfides in mesoporous oxide films from precursors in solution;* D. Onna, M.C Marchi, M.L Martínez Ricci, S. A. Bilmes, *J. Sol-Gel Sci. Tech*, **102**, 264–278; 2022; <https://doi.org/10.1007/s10971-021-05718-4>

## Teaching and popularization production

### Books for students and teachers

- *El desafío de enseñar ciencias naturales*, Laura Fumagalli, Editorial Troquel, 1993
- *Química I, fundamentos.* S.Aldabe, P. Aramendía, L. Lacreu. Libro para alumnos de Polimodal. Editorial Colihue (1999) 454 pags *Tabla periódica de los elementos.* S.Aldabe, P. Aramendía, L. Lacreu. Editorial Colihue (2000)
- *Química II, química en acción.* S.Aldabe, P. Aramendía, C. Bonazzola, L. Lacreu. Libro para alumnos de Polimodal orientado a ciencias naturales y tecnología Editorial Colihue (2005)
- *Construyendo Con Átomos y Moléculas (Eudeba, Colección Ciencia Joven n°17)* integrante del equipo INDIGO
- *Conceptos y modelos para comprender la química, (EUDEBA, in press 2022).* D. Estrin, S.A. Bilmes, Eds.

## Technological transfer activities

Rizobacter SA. Hybrid matrices for the incorporation of rizobacteria to seeds  
 Fabriquímica SA: encapsulation of molecules in silica matrices for cosmetics  
 FASINPAT: self-cleaning tiles