



GEORGIA SECTION

MEETING Announcement



ACS
Chemistry for Life™

Wednesday, April 11, 2018

Dr. Marie Paule Pileni
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Department of Chemistry
4 place Jussieu 75005 Paris, France

**Recipient of the 2017 ACS-SCF Franco-
American Lectureship Award**

Nanocrystallinity, Supracrystals: Unexpected behavior

Location:

B-Building Atrium
Georgia Gwinnett College,
1000 University Center Lane,
Lawrenceville, GA 30043

Directions: [Click Here](#)

Parking Map: [Click Here](#)

6:30 pm Meet and mingle

7:00 pm Dinner

8:00 pm Speaker

Menu:

Salad: Seasonal garden salad with balsamic vinaigrette, seasonal fresh fruit salad.

Entrée: Stuffed chicken breast with goat cheese and sun dried tomatoes, grilled salmon with sundried tomato pesto sauce, eggplant lasagna, pan roasted vegetables, marinated roasted red potatoes

Dessert: Cinnamon cherry pear crisp
(Includes coffee and iced tea)

RSVP by 5:00 pm on Friday, April 6, 2018 at
<https://goo.gl/i2SKfC>

Price: \$30 regular; \$20 retired, current ACS members and K-12 teachers, \$10 students

Payment: ***At the door*** Cash, credit card, or check to: "Georgia Section ACS"

Note: If you make a reservation and then do not attend, you will be charged for the meal as we have to guarantee the number of meals.



Dr. Marie Paule Pileni

Nanocrystallinity, Supracrystals: Unexpected behavior

ABSTRACT:

The nanocrystals with low size distribution self-assemble in 3D super lattices called supracrystals. The crystalline structure of nanocrystals called nano crystallinity plays a key role on these self-assemblies. Heterogeneous and homogeneous growth processes of supracrystals take place inducing marked changes in their physical properties. We describe some physical and chemical properties nanomaterials differing by the crystalline structure called nanocrystallinity: It is demonstrated that nanocrystallinity play a major role in the final structure when nanocrystals are subjected to oxidation processes (Kinkendall effect). Concerning the optical properties, some processes are markedly affected by the crystalline structure whereas others are negligible. Note that a hierarchy in supracrystal growth processes, nanocrystallinity segregation, growth of quasi supracrystals and supracrystals characterized by vicinal surfaces are pointed out. Collective and intrinsic properties of either one or two components are demonstrated. "Clustered" and "eggs" structures are hydrophobic supracrystals are dispersed in aqueous solution with a very high stability (almost two years). Solubilization of hydrophobic supracrystal in aqueous solution is obtained with Co and Au supracrystals with

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appearance of tunable plasmonic metamaterials. With Au supracrystals, the optical properties revealed that the fingerprint of nanocrystal is preserved even for large crystalline aggregates demonstrating that the nanocrystal could be used as a probe for investigating the optical properties of such assemblies. Preliminary data obtained with such structures indicate that they

are good candidate for ablation of cancer cells via photo thermia processes. A rather large number of applications are expected with such water-soluble supracrystals.

Brought to you by: ACS Georgia Local Section, ACS International Activities and GGC School of Science and Technology.