

## Curriculum vitae

**Name :** SÂRBU ANDREI.

**Date and place of birth:** June, 21, 1949 Bucharest.

**Status:** Married, 1 child

**Education:** Graduate in 1972 of the Polytechnic University of Bucharest, Chemical Engineering Department, Macromolecular Chemistry Division;

In 1984 I got through examination the doctor engineer degree, with the thesis “Study of the acrylonitrile and vinylidene chloride copolymerization in aqueous medium”, guided by Prof dr. eng. Dumitru Sândulescu from the University for Oil and Natural Gas Ploiesti.

**Qualification:** Diplomat engineer specialized in macromolecular chemistry with a Bachelor of Science degree; chief scientific researcher first degree

**Experience:** 1972-2020 (continuing) - Researcher at the National Research- Development Institute for Chemistry and Petrochemistry- ICECHIM in Bucharest, Polymer Department.

In 1978 I was confirmed scientific researcher, in 1984 I was promoted main scientific researcher III degree and since 1990 I am main scientific researcher I degree. Since 2004 till 2013 I was vice director of Polymer Department. Since 2013 I am the leader of team 1: Polymer Advanced Materials and Polymer Recycling

**Activity:** In ICECHIM I worked in the field of synthesis and processing of polymers.

I contributed to the elaboration of more than 230 technological research works for various beneficiaries and to 138 published and accepted papers (107 ISI), 4 Book chapters in Nova Publishers, USA, 423 communications at national and international symposia and congresses, 34 patents from which 1 European patent and 26 patent application.

In the research activity I dealt with the following fields:

-various acrylonitrile copolymers synthesis and processing: modacrylic copolymers and fibers, polyetoxylated copolymers and fibers, yielding of antistatic, non-flammable, ultra thin, antibacterial, electro conductive and other modified acrylic fibers;

-polyvinyl acetate synthesis, the transforming in polyvinyl alcohol and the production of fibers based on polyvinyl alcohol;

- processing of polypropylene and polyethylene to produce synthetic fibers;

- polyethylene terephthalate synthesis and its processing in fibers, bottles and molded articles;

- valorization of cellulose esters from cinematography films;
- modification of chemical fibers to introduce ion exchanging groups;
- fireproofing of polycaprolactame;
- yielding of membranes and hollow fibers from cellulose derivatives and other polymers;
- polysaccharides characterization and chemical degradation;
- enzyme immobilization on polymers;
- bioactive fibers and textiles;
- electroconductive fibers;
- modified flat membranes;
- molecularly imprinted polymers obtaining by polymerization or phase inversion;
- polymer nanocomposites
- hybrid inorganic- organic nanocomposites
- synthesis of silicon nitride and silicon carbide via polymer inorganic- organic

nanocomposites;

- ceramic foams by gelcasting for filter and catalysis
- acrylic hydrogels and hybrid natural- synthetic hydrogels
- polyurethane synthesis and spinning;
- PET wastes recovery by chemical and physical methods
- biosensors for the monitoring of various pollutants;
- alumina inorganic fibers
- recycling of polystyrene waste packages for thermal insulation of buildings
- adhesives
- sensors for explosives and drugs monitorin
- valorization of crustaceans wastes for chitosan composites useful in water treatment,
- valorization of red mud for ceramic foams via polymer nanocomposites

Some theoretical aspects in which I was working are: polycondensation, copolycondensation and depolycondensation, polymer and copolymer synthesis by radical mechanism in heterogeneous systems (especially in the emulsion system with insufficient

emulsifier), synthesis by radical mechanism of the vinyl polymers in solution, polymer reactions, biopolymer derivatives, concentrated polymer solutions rheology, compatibility polymer-solvent- non solvent and polymer-polymer, flat membranes and hollow fibers, thermal and thermo oxidative stability of polymers, size exclusion chromatography on polymers and biopolymers, molecular imprinting of polymers, covalent immobilization of enzymes on polymers, supramolecular structures obtained by the polymerization of vinyl monomers in nano porous inorganic structures (host-guest polymerization), polymerization in aqueous inorganic concentrated suspensions, structure of polymers, textile finishing, flowcharts, problems of distillation, rectification, filtering, drying, condensation, analytical problems.

**Foreign languages:** English, French, Russian, Portuguese (good reading, writing, conversation). German (little knowledge)

**Other information:** In 1981 I graduated the intensive post university course of Russian at Bucharest University.

In 1983 I graduated the course of simulation, optimization and experiment planning, organized by the Chemical Engineering Department from the Polytechnic University from Bucharest.

Between 1990- 2008 I was associated teacher at the University “Politehnica” Bucharest, Faculty of Industrial Chemistry, Chemical Engineering Department, where I led projects, laboratory work and seminars, concerning impulse, mass and thermal transfer phenomena.

From 2003- till now I am associated researcher at the University of Bucharest, Chemistry and Biology faculties, Research Center for Environment Protection and Waste Management.

From May 2000 to May 2002 I worked as an invited researcher with a postdoctoral bourse in the Technical Superior Institute from Lisbon, in the chemical engineering department, in the membranes laboratory headed by the prof. Maria Norberta de Pinho.

In May- June 2011, September- October 2012, May-June 2013, May- June 2015, May-June 2016 May –June 2017, May- June 2018 and September 2019, I was invited professor, each time 2 weeks- one month at the University of Toulon, France

From 2003 I am evaluator in national (Matnantech, Relansin, CEEEX, CNCSIS Innovation, Parteneriates, Ideas, Post Doctoral and Young team) and international programs (Crosstexnet, ISTC projects, Bulgarian, Sud- Africa projects, Eurostars, COST, IFD Denmark, Inowide, DLR)

I am reviewer at many Journals, such as: Revista de Chimie, Revista Materiale Plastice, Journal of Applied Polymer Science, Journal of Membrane Science, Enzyme and Microbial Technology, Journal of Food Biochemistry, European Polymer Journal, Chemical Papers, Journal of Polymers and Environment, Journal of Petroleum and Gas Engineering, Polymer International, Process Biochemistry, Biopolymers, African Journal of Microbiology Research, Philippine Journal of Science, Biotechnology progress, Central European Journal of Chemistry, Desalination and water treatment

Member in juries for thesis defense at University Politehnica from Bucharest, Technical University from Iasi, Aalborg University, Denmark, Besancon University, France and Western Cape University, South Africa.

Owner of the GREAT PRICE OF THE PATENT NATIONAL EXHIBITION Bucharest 1981 for the Romanian Patent: 68506. Process for obtaining modacrylic fibres based on acrylonitrile-vinylidene chloride copolymers Authors: Florica Butaciu, Andrei Sârbu, Maria Ionescu et al.

Owner of the GOLD MEDAL OF THE INTERNATIONAL PATENT EXHIBITION Eureka-Bruxelles november 2008, and of the SILVER MEDAL OF THE NATIONAL PATENT EXHIBITION INVENTICA Bucuresti, october 2009 for the Patent application: Process for the obtaining of silicon nitride with tailored structure Folder OSIM: A/00229/27.03.2008, Authors: Sarbu Andrei, Mara Eleonora Luminita, Abagiu Traian Alexandru et al

Owner of the GOLD MEDAL and of the gold medal of education ministry from Rusia at the INTERNATIONAL SALON of INVENTIONS Geneva 2013 and of GOLD MEDAL and Gold medal of Inventions incubator from Rusia at PATENT EXHIBITION Eureka- Bruxelles november 2013 for the patent application Procedure for the obtaining of polymer hybrid inorganic-organic nanocomposites based on natural or synthetic zeolites and polyacrylonitrile. Folder OSIM A/00273 29.03.2011 Authors: Sarbu Andrei, Ciripoiu Anita Laura, Lungu Anamaria, Bacalum Fanica, Sarbu Liliana, Bombos Mihaela Mariana. The same patent application got the SILVER MEDAL at the National Invention exhibition Inventica 2011.

GOLD MEDAL at the Geneva Inventions Salon 2018 and GOLD MEDAL Tehnoton Russia for patent application A / 00571 / 04.08.2015 "Polymer films with trinitrotoluen molecular imprints deposited on TiO<sub>2</sub> support and process for obtaining them".

SILVER MEDAL at the Geneva Inventions Salon 2019 and the PRICE of Iran Delegation for the patent application A/00620/07.09.2016, "Nanohydrogels for the controlled release of drugs and a process for their preparation"

Owner of the SILVER MEDAL OF THE NATIONAL PATENT EXHIBITION INVENTICA Bucuresti, October 2009 for the Patent asking: Mesoporous silica and process for its obtaining, Folder OSIM: A/00301/17.04.2008, Authors: Mara Eleonora Luminita, Velea Teodor, Sarbu Andrei, Sarbu Liliana et al.

Owner of the SILVER MEDAL at the Patent Exhibition Euroinvent, May 2013 and of SILVER MEDAL of the International Exhibition Proinventica Cluj- Napoca for the Patent application Acrylic multifunctional bicomponent membranes and procedure for their obtaining Folder OSIM A/00139/ 08.02.2013, authors: Sarbu Andrei, Sandu Teodor, Sarbu Liliana, Lungu Anamaria

Member of the editorial board of the Journals: Materiale Plastice (ISI, IF: 1,517) and Bulletin of Romanian Chemical Engineering Society (BDI)

Member of Romanian Chemical Society (president of filial 3 Bucharest and member of the National Board), member of the Romanian Chemical Engineering Society (member of the National Board), member of Molecularly Imprinted Polymers Society ( SMI), member of American Chemical Society, Member of Royal Society for Chemistry, member of Environmental Biotechnology (EB), Division of the European Federation of Biotechnology (EFB).

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