Juan Carlos Pérez Moure (Curriculum Vitae)

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Born 4-August -1962 in A Cañiza (Pontevedra)-Spain

OBJECTIV: Theoretical Telework research in the area of the Riemann Hypothesis, Mathematics applied to the Physical Chemistry or to other Science Fields.

APTITUDES

Research and Teaching experience in various Physical Chemistry areas.

ACADEMIC DEGREES

1) **Chemistry Degree** (1980-1985). Speciality of Foundamental Chemistry. Faculty of Chemistry. University of Santiago de Compostela (Spain).

2) **Chemistry Degree Thesis** (11-11-1985). "Theoretical Study of Diffusion Controlled Reactions: New "Quasichemical" Model.

   Director: Prof. Manuel Arturo López Quintela. Faculty of Chemistry.University of Santiago de Compostela. (Spain).

3) **Doctor Degree** (25-9-1991). Doctoral Thesis: "Kinetic Study of the Chlorination of the compounds : Aminobutyric Acids and Buthylamines in alcaline solution"

   Director: Prof. Juan Manuel Antelo Cortizas. Faculty of Chemistry.University of Santiago de Compostela. (Spain).

TEACHING AND RESEARCH EXPERIENCE

1) **Assistent Professor.** "Physical Chemistry II" Laboratory. Faculty of Chemistry. University of Bielefed (Germany) . October-December 1986.

2) **Research Fellow**: Research and Practical Teaching of Chemical Physics Laboratory. Faculty of Chemistry.University of Santiago de Compostela. (Spain). (January 1988-September 1989).

3) **Assistent Professor:** Research and Practical Teaching of Chemical Physics Laboratory. Faculty of Chemistry. University of Santiago de Compostela. (Spain). (October 1989-September 1994).

4) **Associate Professor:** Research and Teaching of Chemical Physics . Faculty of Chemistry. University of Santiago de Compostela. (Spain).(October 1996-September 1999).

5) **Associate Professor** (Partial time). Research and Teaching of Chemical Physics . Faculty of Sciences. (Lugo). University of Santiago de Compostela (Spain) .October 1999-November 1999.

6) **Associate Professor** (Partial time). Research and Teaching of Chemical Physics Laboratory. Faculty of Sciences. University of Vigo (Spain).(November 1999- September 2000).

7) **Associate Professor** (Partial time). Research and Teaching of Chemical Physics Laboratory. Faculty of Sciences. University of Vigo (Spain). (February 2001-September 2003)

FELLOWSHIPS

1) **Fellowship of participation in the Seminar " Flüsigkeitsforschung**". Zentrum für Interdisziplinäre Forschung. University of Bielefeld (Germany). July 1986-December 1986.

2) **Fellowship of participation in the Congress "Bunsentagung**". Deutche Bunsen-Gesellshaft fúr Physickalische Chemie. University of Göttingen.(Germany)

3) **Fellowship "Heinrich Hertz-Stiftung"**. Der Minister Für Wissenschaft und Forschung des Landes Nordrhein-Westfalen. Faculty of Chemistry. University of Bielefeld (Germany). November-December 1987

4) **Fellowship of Stay in foreign lands** . Consellería de Educación e Ordenación Universitaria (Xunta de Galicia). Department of Chemistry .University of South Florida (USA). March- December 1994.

STAYS IN FOREIGN RESEARCH CENTERS

1) Faculty of Chemistry. University of Bielefeld (Germany). August - September 1985.

2) Faculty of Chemistry. University of Bielefeld (Germany). July-December 1986.

3) Faculty of Chemistry. University of Bielefeld (Germany). February- June 1987.

4) Faculty of Chemistry. University of Bielefeld (Germany). November – December 1987.

5) Department of Chemistry. University of South Florida. (USA). March – December 1994

TEACHING COURSES EXPERIENCE

1) **General Chemistry . Bond and Structure of the Matter.**
2) **Chemical Kinetics.**
3) **Chemical Thermodynamics**
4) **Electrochemistry**

RESEARCH FIELDS EXPERIENCE

1) **Theoretical Study of Diffusion Controlled Reactions in Solution.**
2) **Experimental Chemical Kinetics in Solution.**
3) **Fluorescence Quenching in Solution.**
4) **Diffusion Processes in liquids.**
5) **Solution of Schrödinger Equation for Simple Quantum Systems.**
6) **Ab initio Quantum Calculation of Energies and Molecular Geometry (Gaussian Program)**
7) **The Riemann Hypothesis**

EXPERIMENTAL TECHNIQUES USED

1) **Spectrophotometry Visible-Ultraviolet to study slow kinetic reactions in solution.**
2) **Temperature Jump Technique for rapid reaction kinetics in solution.**
3) **Stopped-Flow Technique to study reaction kinetics in solution.**
4) **Spectrofluorimeter applied to Fluorescence Quenching.**

COMPUTER PROGRAMATION (LANGUAGE)

1) **Qbasic**

2) **Fortran 77**

DIRECTION OF CHEMISTRY DEGREE THESIS

"Kinetic Study of the chlorination of N-methyl acetamide. A.I.Pousa. Department of Physical Chemistry. Faculty of Chemistry . University of Santiago de Compostela (Spain). July 1993.

PUBLISHED ARTICLES

1) Influence of fractal dimension on Diffusion-Controlled Reactions. Chemical .Physics Letters., Vol.138 (1987) 476. M.A.López-Quintela, J.C.Pérez-Moure, M.C.Buján-Núñez, J.Samios.

2) Influence of the fractal geometry of trajectories on the rate of diffusion-controled bulk ion recombination. Journal of Chemical .Physics. Vol.88 (1988) 7478. M.A.López-Quintela, M.C.Buján-Núñez, J.C.Pérez-Moure.

3) Fractal analysis of Brownian Dynamics Simulations of diffusion-controlled reactions.Chemical .Physics, Vol.132 (1989) 83. M.A.López-Quintela, M.C.Buján-Núñez, J.C.Pérez-Moure

4) Kinetics of the N-chlorination of 2-aminobutyric, 3-aminobuyric and 4-aminobutyric acid in aqueous solution. International Journal of Chemical Kinetics, Vol.24 (1992) 1093. J.M.Antelo, F.Arce, J.C.Pérez-Moure.

5) Estudios sobre estabilidad de N-cloro-aminoácidos.II. Influencia del pH sobre la estabilidad de N-cloro-glutámico y N-cloro-treonina. Anales de Química de la RSEQ. Vol 88 (1992) 359. J.M.Antelo, F.Arce, A.J.Carballo, J.Crugeiras, J.C.Pérez, P.Rodríguez, A.Varela

6) Kinetics of the Formation, Decomposition and Disproportionation of N-chlorobutylamines. International Journal of Chemical Kinetics. Vol. 27 (1995) 703. J.M.Antelo, F.Arce, J.Crugeiras, J.C.Pérez-Moure, P.Rodríguez.

7) Chlorination of N-Methylacetamide. A Kinetic Study. International Journal of Chemical Kinetics, Vol. 27, 1021 (1995). J.M.Antelo, F.Arce, M.Parajó, A.I.Pousa, J.C.Pérez-Moure.

CONGRESS COMMUNICATIONS

1) Theory of Diffusion Controlled Reactions. The Royal Society of Chemistry. University of Kent at Canterbury (England). 7-11 July 1986.

2) Reacciones Controladas por Difusión : Análisis Fractal de la simulación por Dinámica Browniana. I Reunión de Física Estadística. Barcelona (Spain) 21-23 Abril 1987.

3) Fractal Analisis of Brownian Dynamics Simulation of Diffusion Controlled reactions. III EPS Liquide State Conference. Santa Trada (Reggio Calabria) (Italy). 21-25 Sept. 1987.

4) Estudio de la formación del ácido N-Cl- 3 aminobutírico en solución acuosa. 23 Reunión Bienal de la Real Sociedad Española de Química. Salamanca. (Spain) 23-28 Septiembre. 1990.

5) Estudio cinético de la descomposición del ácido N-Bromo glutámico. 23 Reunión Bienal de la Real Sociedad Española de Química. Salamanca. 23-28 Septiembre 1990.

6) Estudio cinético de la cloración de los compuestos: Acido 4-aminobutírico, ac. 3-amino-isobutírico, ácido 3-aminobutírico y ácido 2-aminobutírico en disolución acuosa. 12 Encontro da Sociedade Portuguesa de Química. Coimbra. (Portugal) 10-13 Marzo 1991.

LABORATORY TEACHING EXPERIENCE

Chemical Kinetics

1) Kinetic study of the reaction between crystal violet and hydroxide ions by spectrophotometric technique.
2) Kinetic study of the hydrolisis of a ester (ethyl acetate) by titration.
3) Kinetic study of the hydrolisis of a ester (ethyl acetate) by conductimetric technique.
4) Kinetics of the hydrolisis (inversion) of sacarose. Specific acid catalysis.
5) Kinetic study of the acid and alcaline hydrolisis reaction of N-methyl-N-nitro--toluen-sulphonamide (MNTS) in aqueous solution and in micellar medium and spectrophotometry.
6) Catalitic Decomposition of hydrogen peroxide.
7) Kinetic study of the reaction between persulfate and iodide ions.

Chemical Thermodynamics

1) Determination of the acid constant of a weak acid (oxalic acid, acetic acid) by pH measures.

2) Determination of the acid constant of a weak acid by conductimetry.

3) Neutralization Heat

4) Specific Heat of liquids and solids.

5) Partial Molar Volume of a binary mixture ethanol-water.

6) Phase diagrams of a three component system: water, acetic acid, chloroform.

7) Solution Heat of ionic salts in water. Calorimetric Method.

8) Solution Heat of oxalic acid. Solubility Method.

9) Determination of the homogeneous equilibrium constant by titration. Acetic acid - ethanol –ethyl acetate- water.

10) Distribution of a solute (iodine) between two non soluble solvents.

11) State equation of an ideal gas.

12) Water Boiling point increase by addition of a solute..

13) Water Freezing Point decrease in presence of a solute.

14) Solution- gas equilibrium. Boiling Temperature – composition Diagrams of binary mixtures by refraction index measures. Azeotrope.

15) Determination of molecular weights by distillation of a pair of non soluble solvents.

16) Conductimetric Titration.

17) Solid-Liquid Phase Equilibrium. Eutectic.

Spectroscopy

1) Emission Spectrum of monoelectronic atoms (sodium). Fine Structure.

2) Rotational-Vibration Spectroscopy. Infrared Spectrum of hydrogen chloride.

3) Electronic-Vibration Spectrum of gas iodine.

4) Absorption spectrums of dyes or conjugates polyenes. Free electron method or the particle in a box.

5) Absorption and Fluorescence Spectroscopy. Spectrum of 2-naphtol and its excited state properties.

6) Electronic Spin Resonance. Spectrum of the radical DPPH (1,1- diphenyl –2-picril- hydracil).

General Physical Chemistry

1) Potentiometric and Conductymetric Titration.

2) Determination of the ionization constant of an indicator (bromophenol blue) by a spectrophotometric technique.

3) Calculation of the critique micellar concentration (CMC) of the tensioactiv sodium dodecile- sulphate (SDS).

4) Adsorption Isoterms of oxalic acid on active carbon.

5) Determination of the viscosity of liquids using Ostwald and fall a ball viscosimeter. Influence of the temperature.

6) Measure of the Superficial Tension of liquids by drop fall method.

Magnetic Properties

1) Determination of the magnetic susceptibility of transition metal complexes solutions.

Electrochemistry

1) Nernst Equation. Determination of standard potential of electrode.

LANGUAGES

1) Spanish

2) Galician (High Level)

3) English (Medium Level)

4) French (Medium –High Level)

5) Portuguese(speech and writing understanding)

6) German (Elementary Level: speak very little)

PEDAGOGIC FORMATION

COURSE OF PEDAGOGIC APTITUDE (CAP)