

VI. RESEARCHERS CURRICULA

(Fill out one form for the Principal Investigator and for each CoInvestigator).

VI.1. BIOGRAPHICAL INFORMATION

1	0	6	7	7	7	4	8	-	9
TAXPAYER ID # (Do not include decimal point)									

TORRES	DÍAZ	MARÍA SOLEDAD
FATHER 'S SURNAME	MOTHER'S MAIDEN SURNAME	NAMES

27	11	1968	M	F	X	CHILENA	56-32-508327	56-32-508268
Day	Month	Year						
DATE OF BIRTH			SEX			NATIONALITY	TELEPHONE	FAX

MAILING ADDRESS

QUINTA	VALPARAÍSO	Av. Gran Bretaña 1091, 4° Piso, Playa Ancha	Soledad.Torres@uv.cl
REGION	CITY	P.O. BOX	E-MAIL ADDRESS

DEPARTMENT OF STATISTICS, FACULTAD DE CIENCIAS DE LA UNIVERSIDAD DE VALPARAÍSO
INSTITUTION

VI.2. ACADEMIC BACKGROUND

Professional Title(s)	UNIVERSITY	COUNTRY	YEAR
Bachelor degree in Mathematics	Pontificia Universidad Católica de Valparaíso	Chile	1991
Academic Degrees			
Master Of Science in Mathematics	Universidad Técnica Federico Santa María	Chile	1995
Ph.D. in Engineering Science; Mathematical Modeling	Universidad de Chile	Chile	1998
Other			
Visiting Assistant Professor	Mathematics Department, Purdue University	U.S.A.	2001-2002

Main Lines of Research/Specialty Areas

1.-Stochastic Analysis
2.-Numerical solution for Stochastic Differential Equations
3.-Statistics Inference in Stochastic Processes

CURRENT ACADEMIC APPOINTMENT(S)	INSTITUTION	HOURS PER WEEK
Full Professor	Department of Statistics, Universidad de Valparaíso	44

VI.3. PARTICIPATION IN FONDECYT-APPROVED PROJECTS (LAST 10 YEARS).

YEAR		PROJECT NUMBER & TITLE	ROLE (PI, CoInvestigator)
Begin	End		
2005	2008	N°1050843 Numerical Analysis for Reflected Backward Stochastic Differential Equations with applications to Finance and Population Dynamics	PI
2005	2006	N° 7060271 Numerical Analysis for Reflected Backward Stochastic Differential Equations with applications to Finance and Population Dynamics	PI
2000	2003	N° 1000270 Inferencia Estadística en Dinámica de Poblaciones	CoInvestigator
2001	2004	N° 1020211 On some contributions to numerical approximations in Stochastic Differential Equations	PI
2001	2004	N° 7020211 On some contributions to numerical approximations in Stochastic Differential Equations	PI

VI.4. PARTICIPATION IN OTHER PROJECTS OR RESEARCH PROGRAMS FUNDED BY NATIONAL OR FOREIGN SOURCES (LAST 5 YEARS). SPECIFY THEIR GOALS AND EXPLAIN THEIR DIFFERENCES WITH THE CURRENT PROPOSAL.

(Attach as many pages as needed)

FONDECYT Councils, at their discretion, may request proper certification.

YEAR		FUNDING SOURCE	PROJECT TITLE	ROLE (PI, CoInvestigator)
Begin	End			
2003	2005	INRIA – Conicyt	Modélisation stochastique et traitement numérique de systèmes de haute complexité	CoInvestigator

SPECIFICATION:

The propose of this Project is to develop application in the Theory of Stochastic Analysis in two main aspects:

(D1) Numerical analysis for open quantum system;

(D2) Numerical analysis for Backward Stochastic Differential equations.

YEAR		FUNDING SOURCE	PROJECT TITLE	ROLE (PI, CoInvestigator)
Begin	End			
2005	2008	MIDEPLAN	Milennium Nucleus : Information and Renadomness	CoInvestigator

SPECIFICATION:

This Nucleus assembles the expertise in the mathematical areas of information theory and randomness.

The main areas of research are: Entropy and complexity; statistics and thermodynamic; stochastic differential equations, among others.

YEAR		FUNDING SOURCE	PROJECT TITLE	ROLE (PI, Coinvestigator)
Begin	End			
2006	2008	PBCT – CONICYT Anillos de Ciencia y Tecnología	Laboratorio de Análisis Estocástico (ANESTOC)	CoInvestigator

SPECIFICATION:

Análisis, probabilidad, Análisis Estocástico y Aplicaciones en torno a las siguientes áreas:

Física, biología e Ingeniería.

VI.5. PUBLICATIONS. Please provide full references (author(s), title, journal full name, volume, pages, year) for articles **accepted or published** over the last 5 years. If appropriate, specify the FONDECYT project number.

a. **Publications since 2001.** Use additional sheets, if necessary. Use an "X" to check the appropriate box*.

Author(s)	J. San Martín, S. Torres								
Article title	"Euler Scheme for countable systems of stochastic differential equations"								
Journal full name	Statistics and Probability Letters						FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*				
	2001	54	3	251-259	Published	<input checked="" type="checkbox"/>	In press	<input type="checkbox"/>	Accepted

Author(s)	R. Fierro, S. Torres								
Article title	The Euler Scheme for Hilbert space value stochastic differential equations								
Journal full name	Statistics and Probability Letters						FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*				
	2001	57	3	207-213	Published	<input checked="" type="checkbox"/>	In press	<input type="checkbox"/>	Accepted

Author(s)	M. Kobilansky, J. P. Lepeltier, M.C. Quenez, S. Torres								
Article title	Existence for reflected ed BSDE with superlinear quadratic coefficient								
Journal full name	Probability and Mathematical Statistics						FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*				
	2002	22	1	51-83	Published	<input checked="" type="checkbox"/>	In press	<input type="checkbox"/>	Accepted

Author(s)	J. Ma, P. Protter, J. San Martín, S. Torres								
Article title	Numerical method for backward stochastic differential equations								
Journal full name	Annals of Applied Probability						FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*				
	2002	12	1	302-316	Published	<input checked="" type="checkbox"/>	In press	<input type="checkbox"/>	Accepted

Author(s)	H. Allende, M. Elias, S. Torres									
Article title	Estimation of the options prime: microsimulation of BSDE's									
Journal full name	International Statistical Review							FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*					
	2002	1		107-121	Published	x	In press		Accepted	

Author(s)	H. Allende, N Lacourly, S. Torres									
Article title	"Robust portmanteau TRA Tests and Their Limit Distribution"									
Journal full name	Communications in Statistics , Theory and Methods							FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*					
	2004	33	8	1899-1915	Published	x	In press		Accepted	

Author(s)	N. Barrera, S. Torres, B. Morales, M. Villalón									
Article title	"Prediction of Synergism on frequency of responses in the attojoule range"									
Journal full name	Phys, Chem. Chem. Phys							FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*					
	2004	6	8	1806-1814	Published	x	In press		Accepted	

Author(s)	M. Galea, J. Ma, S. Torres									
Article title	"Price Calculation for Power Exponential Jump-diffusion Models – A hermite-series approach"									
Journal full name	Contemporary Mathematics							FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*					
	2004	336		137-159	Published	x	In press		Accepted	

Author(s)	C. Tudor, , S. Torres									
Article title	"The Euler Scheme for a class of Anticipating Stochastic Differential Equations"									
Journal full name	Random Oper. Stochastic Equations							FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*					
	2004	12	3	211-224	Published	x	In press		Accepted	

Author(s)	N. Barrera, B. Morales, S. Torres, M. Villalón									
Article title	"Principles: Mechanism and modeling of synergism in cellular response"									
Journal full name	Trends in Pharmacological Sciences							FONDECYT Project N°		
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*					
	2005	26	10	526 -- 532	Published	x	In press		Accepted	

Author(s)	N. Barrera, M. Galea, S. Torres, M. Villalón							
Article title	"Class of a skew distributions: Theory and Application in Biology"							
Journal full name	<i>Statistics</i>						FONDECYT Project N°	
							1050843	
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*			
	2006	40	4	365—375	Published	x	In press	Accepted

- b. **Books and Book Chapters since 2001:** Please provide full references and use additional sheets if necessary. Use an "X" to check the appropriate box*.

Author(s)								
Title of Book or Chapter								
Editor(s) Name(s)								
Editorial								
Publication Place & Date								
Publication type*						Pages		
Book		Book Chapter		Monograph				

- c. **PUBLICATIONS IN PROCEEDINGS OF SCIENTIFIC MEETINGS SINCE 2001.** Include up to 6 publications relevant to this proposal topic.

Author(s)	Soledad Torres							
Abstract Title	Diffusion Model driven by a T-student process: Theory and Bayesian Approach							
Congress Title	ISBA International Society for Bayesian Analysis							
Place, Date & Pages	Country: Chile		City: Viña del Mar		Date: Mayo 2004		Page(s):	

Author(s)	Soledad Torres							
Abstract Title	Proceso de difusión con saltos y estadística Bayesiana							
Congress Title	I Coloquio de Estadística de la Universidad del Bío Bío							
Place, Date & Pages	Country: Chile		City: Concepción		Date: Octubre 2004		Page(s):	

Author(s)	Soledad Torres							
Abstract Title	Modélisation stochastique et traitement numérique de systèmes de haute complexité							
Congress Title	Seminario grupo Omega							
Place, Date & Pages	Country: Francia		City: Nice		Date: Septiembre 2004		Page(s):	

Author(s)	Soledad Torres			
Abstract Title	Cálculo estocástico y Estadística para Finanzas: Monte Carlo pricing of American options			
Congress Title	IX CLAPEM Congreso latinoamericano de probabilidad y Estadística Matemática			
Place, Date & Pages	Country: Uruguay	City: Punta del Este	Date: Marzo 2004	Page(s):

Author(s)	Soledad Torres			
Abstract Title	Jump Diffusion model driven by an infinitely divisible process. Jumps diffusions model driven by Power exponential distribution. A Hermite polynomial approach			
Congress Title	COMCA Congreso de Matemática Capricornio			
Place, Date & Pages	Country: Chile	City: Antofagasta	Date: Agosto 2003	Page(s):

Author(s)	Soledad Torres			
Abstract Title	Modelo de difusión con saltos generado por distribuciones del tipo exponencial potencia. Aproximación mediante polinomios de Hermite			
Congress Title	XXX Jornadas nacionales de Estadística			
Place, Date & Pages	Country: Chile	City: Valdivia	Date: Octubre 2003	Page(s):

Author(s)	Soledad Torres			
Abstract Title	Cursillo: Métodos numéricos para Ecuaciones Diferenciales Estocásticas			
Congress Title	I Escuela de Invierno de Análisis Estocástico y Aplicaciones			
Place, Date & Pages	Country: Chile	City: Valparaíso	Date: Julio 2003	Page(s):

Author(s)	Soledad Torres			
Abstract Title	Métodos numéricos para soluciones de ecuaciones diferenciales estocásticas Backwards reflejadas (RBSDE)			
Congress Title	COMCA			
Place, Date & Pages	Country: Chile	City: Antofagasta	Date: Agosto 2005	Page(s):

d. Publications relevant to this proposal's topic prior to 2001. (No more than 5).

Author(s)								
Article title								
Journal full name								FONDECYT Project N°
Bibliographic Reference	Year	Vol.	N°	Pages	Publication status to date*			
					Published	In press	Accepted	

e. **Thesis Direction.** List Undergraduate, Doctoral and Master's theses directed over the last 5 years.

Students Names	Thesis Title	Degree, Institution & Year Awarded
Yansen, Sergio	Test de hipótesis para difusiones con saltos.	Magíster en Estadística, Universidad de Valparaíso En curso
Carolina González	Estimación de Parámetros en procesos de Difusión con Saltos	Magíster en Ciencias de la Ingeniería Universidad Adolfo Ibáñez 2004
Juan Pablo Duarte	Valoración de Acciones Americanas a través del Cálculo Estocástico	Magíster en Ciencias de la Ingeniería Universidad Adolfo Ibáñez 2004
Piero Lertora	Procesos de Difusión con saltos generados por distribuciones estables con aplicaciones en Finanzas	Magíster en Ciencias de la Ingeniería Universidad Adolfo Ibáñez 2005
Natalia Milla	Relación entre distribuciones y procesos asimétricos	Magíster en Estadística Universidad de Valparaíso En curso
Alejandra Tapia	Estadística en Procesos Puntuales	Magíster en Estadística Universidad de Valparaíso En curso
Paula Avello F.	Cadenas de markov ocultas autorregresivas en el análisis de la actividad de canales iónicos	Magíster en Estadística Universidad de Valparaíso En curso
Daniel Manríquez Ch.	Estimación de Parámetros para el proceso de Rosemblat	Magíster en Estadística Universidad de Valparaíso En curso
Manuel Robles	Concolución de dos variables aleatorias independientes: Normal y beta con aplicaciones en Biología	Ingeniería en Estadística Universidad de Valparaíso 2004
Mariela Heredia	Comparación de algunos Test de Portmanteau en Series de Tiempo	Ingeniería en Estadística Universidad de Valparaíso 2005
Alejandra Tapia	Distribuciones Estables y su Aplicación al Análisis de la Actividad de Canales Iónicos	Ingeniería en Estadística Universidad de Valparaíso 2005
Daniel Manríquez	Aspectos teóricos de cadenas de Markov y una aplicación en el proceso Harness	Ingeniería en Estadística Universidad de Valparaíso 2005
Paula Avello	Cadenas de Markov Ocultas en el Análisis de la Actividad de Canales Iónicos	Ingeniería en Estadística Universidad de Valparaíso 2006
Marisel Valle	"Aplicación del Método CART para un problema de facturación"	Ingeniería en Estadística Universidad de Valparaíso 2007
Alejandra Ganga	Modelo estadístico aplicado al seguro agrícola por pérdidas de producción	Ingeniería en Estadística Universidad de Valparaíso 2007
Cristian Jelvez	Estimación de Parámetros en Cadenas de Markov Aplicado a un Problema de Células Cromafin	Ingeniería en Estadística Universidad de Valparaíso 2007

