

# NANO-Technology Graduate Program



**Sergio O. Martínez**, School of Engineering and Sciences



**Tecnológico  
de Monterrey**



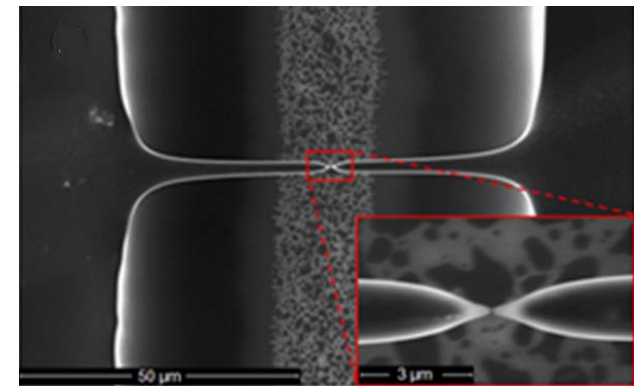
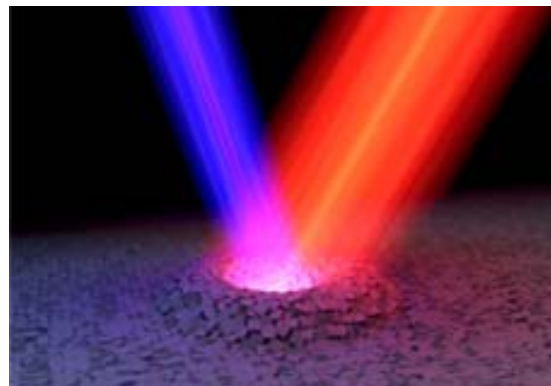
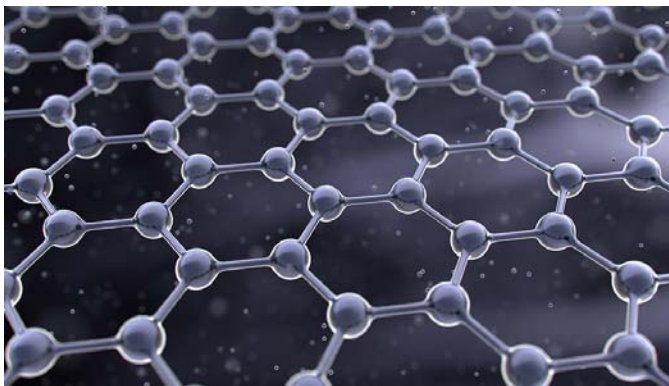
# NANO-Technology Graduate Program

Started in Aug 2017

Combined Master (MNT) and PhD (DNT program)

National Program, PNPC-CONACYT (→ 31.Dec.2022)

Three Avenues: Nanomaterials, Nanophotonics, Nanosystems



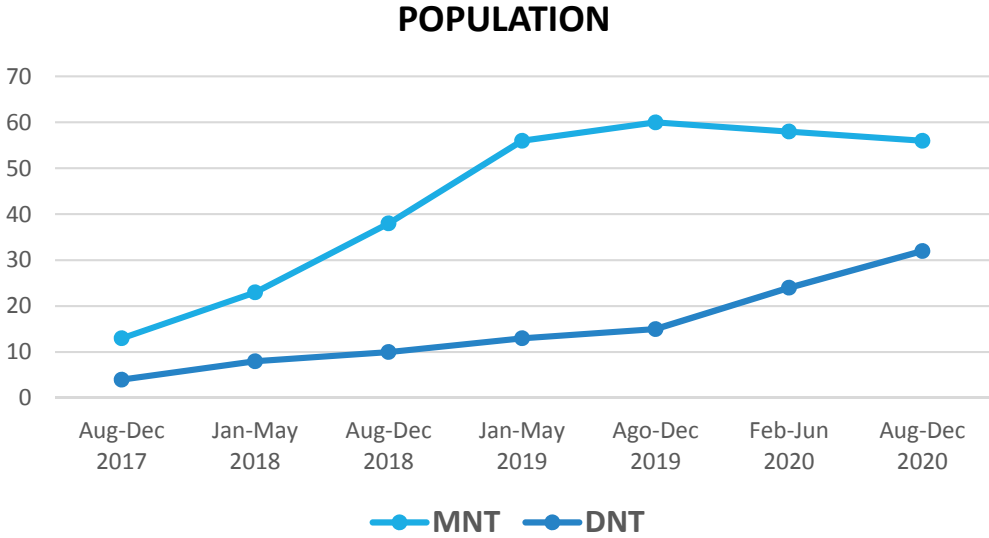
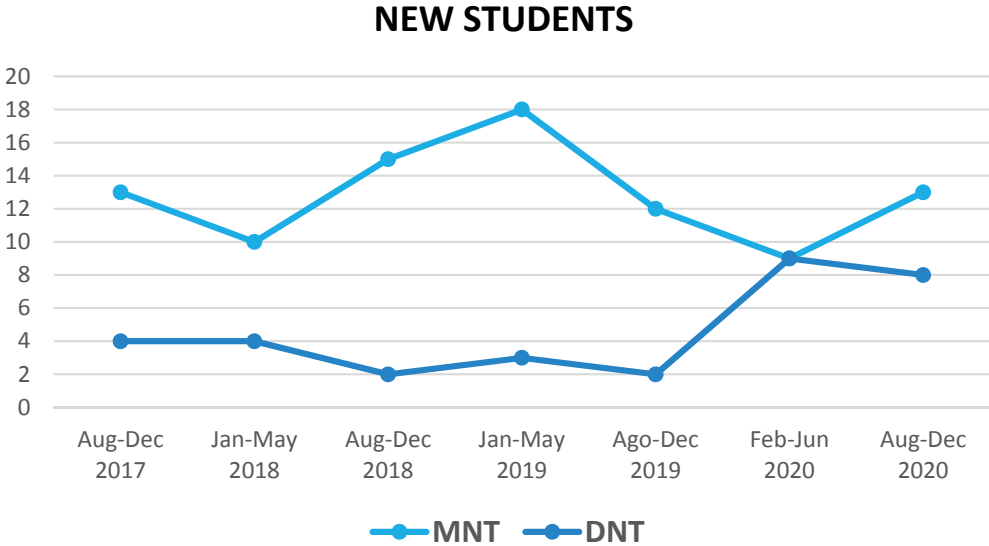
# NANO-Technology Graduate Program, Statistics

<b>60</b>	Professors, <b>57 SNIs</b>
<b>56</b>	Master students
<b>32</b>	PhD students
<b>34</b>	Students graduated from MNT
<b>23%</b>	International students



# NANO-Technology Graduate Program, Statistics

	NEW STUDENTS		GRADUATES		POPULATION	
	MNT	DNT	MNT	DNT	MNT	DNT
Aug-Dec 2017	13	4	0	0	13	4
Jan-May 2018	10	4	0	0	23	8
Aug-Dec 2018	15	2	0	0	38	10
Jan-May 2019	18	3	8	0	56	13
Ago-Dec 2019	12	2	11	0	60	15
Feb-Jun 2020	9	9	15	0	58	24
Aug-Dec 2020	13	8			56	32



# Research Stays in Other Institutions

**18** Research Stays (2018-2020) by 15 Students

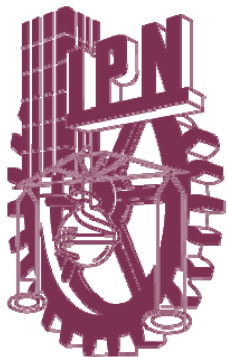
**1** Joint-supervision Double Degree Program



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UNIVERSITY  
OF TWENTE.



Le génie pour l'industrie



Sergio O. Martínez

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# Student participation in Publications

## DNT

- 17** Journal Papers
- 10** Conference Papers
- 1** Book

## MNT

- 22** Journal Papers
- 9** Conference Papers





## Marc J. Madou

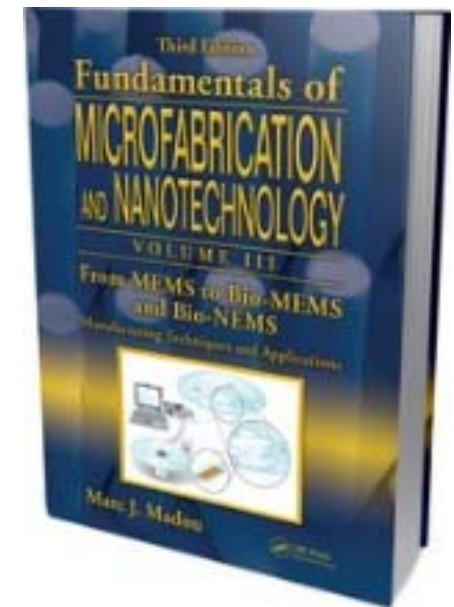
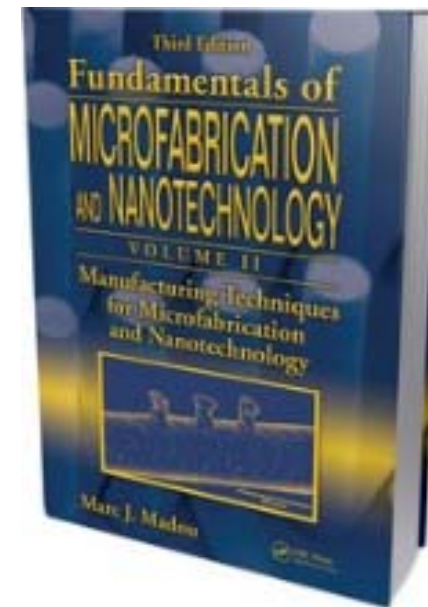
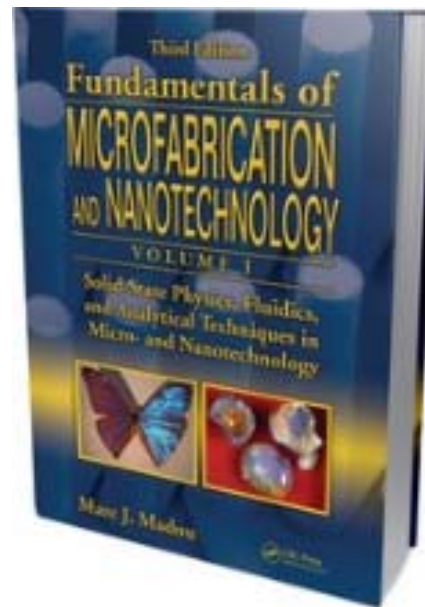
Chancellor's Professor, UCI Samueli School of Engineering  
Department of Mechanical and Aerospace Engineering  
University of California, Irvine

Tec.Nano Strategy Director at Tec de Monterrey



**Carbon-MEMS**

**CD-Microfluidics**



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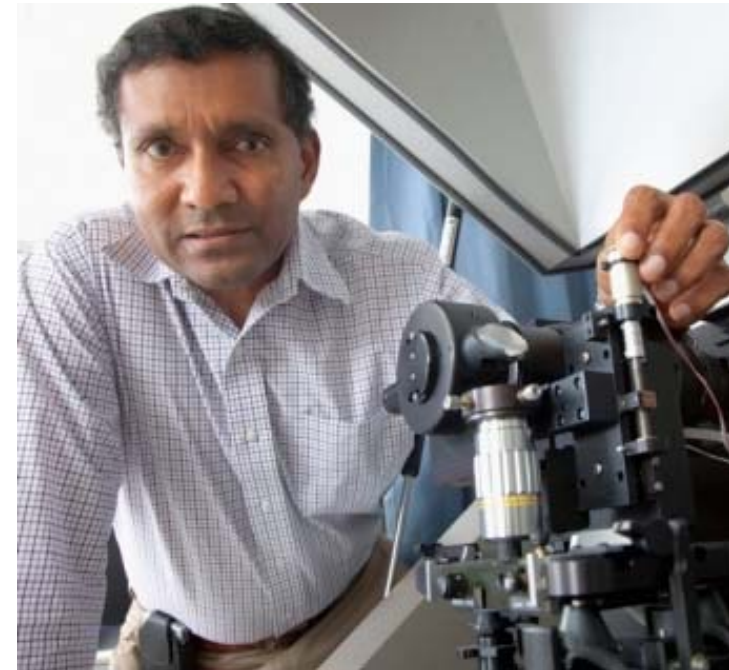
smart@tec.mx

ENDOWED RESEARCH CHAIR

**Federico  
Baur**

**Nanoscopy**

**Biosensors**



Prof. Kumar Wickramasinghe



# Key Information about our Programs

MNT is a two-year Program

DNT is a three/four-year Program

Both Master and PhD are National Programs

All courses are National, most of them being offered by Professors from Monterrey or Mexico City

All courses are offered in English

# MNT Program

	SEMESTER 1	Units
F4005	Mathematical Physical Modeling	12
GI5000	Research and Innovation Methods	6
CS4015	Applied Computing	12
OP4000	Core/Leadership Course	6
		36
	<b>Core/Leadership Courses</b>	
DS4000	Leadership for Sustainable Development	
GI4000	Leadership for Business Innovation	
	<b>SEMESTER 2</b>	
IN4027	Data Science and Statistical Inference	12
NT5011	Thesis I	12
Q4001	Thermodynamics of Materials	12
		36
	<b>SEMESTER 3</b>	
NT5012	Thesis II	12
OP5042	Elective I	12
OP5043	Elective II	12
		36
	<b>SEMESTER 4</b>	
NT5013	Thesis III	12
OP5044	Elective III	12
OP5045	Elective IV	12
		36

	Frequently Offered Elective Courses	Units
F4006	Quantum Mechanics for Nanotechnology	12
F5011	Quantum Optics	12
F5012	Quantum Computation	12
F5014	Nanophotonics	12
F5015	Electromagnetic Polarization	12
M5051	Surface Engineering	12
NT5001	Microfluidics	12
NT5002	Nanobiotechnology	12
NT5003	Nanobiocatalysis	12
NT5004	Nanobiomaterials	12
TE5000	Advanced Microsystems	12
M5035	Nanostructured Materials	12
M5052	Materials Characterization	12
M5031	Smart Materials	12
M5036	Plastics and Composites Engineering	12
BI5014	Fundamentals of Nanomedicine	12
	<b>Other Elective Courses</b>	
F5013	Spintronics	12
M5037	Computational Materials Design	12
M5049	Computational Fluid Dynamics	12
M5036	Plastics and Composites Engineering	12
TBD	Fund. of Electrochemistry and Applications	12

# DNT Program

- **Research-based Program**
- **Students may register in Theoretical Courses** with authorization from their supervisors
- **Type of Courses:** Research Seminars, Research Workshops, Guided Research, Integrated Exam, Research Proposal, Proposal Defense, Doctoral Research, Scientific Product, Defense
- **Among the graduation requirements:** Publication of two JCR Q1/Q2 paper



# Deadlines

## Applicants joining the program in FEBRUARY 2020

Deadline for reception of electronic documents – Friday, December 11, 2020.

Notification of admission – Friday, January 8, 2020.

Beginning of classes – Monday, February 8, 2020.



## Applicants joining the program in AUGUST 2020

Deadline for reception of electronic documents – Friday, June 11, 2020.

Notification of admission – Friday, July 9, 2020.

Beginning of classes – Monday, August 9, 2020.

## International Students

International students are suggested to submit their applications by Nov 1 2019 (FEB 2020) or May 1 2020 (AUG 2020)

# Admission Requirements

- **Application format.**
- **Passport.** Main page.
- **Curriculum Vitae.** Please include contact info so a video-interview can be set.
- **Previous studies.** Bachelor and Master Degrees certificates and transcripts.
- **GRE test.** Accepted minimum scores of 157 for Quantitative Reasoning and 3.5 for Analytical Writing (GRE). **PAEP** for Spanish-speakers (minimum score of 585)
- **Recommendation letters.** Three recommendation letters from academics.
- **Motivations essay.** A two-page essay.
- **English Proficiency.** Minimum requested scores are 550 for TOEFL paper, 79 for TOEFL IBT, 213 for TOEFL CBT, 6.5 for IELTS and C1 for CEFR.
- **Video Interview.**

*<https://maestriasydiplomados.tec.mx/admisiones>*

# Scholarships

- All students admitted to our Program get full-tuition scholarship from Monterrey Tec.
- All students admitted to our Program are eligible to get the CONACYT living expenses Scholarship.
- Both tuition scholarships from Monterrey Tec and Living expenses scholarships from CONACYT are available for Mexican and well as for International Students.
- Additional financial support might be available from CONACYT to support short research stays in other institutions outside of Mexico. This is mainly feasible for PhD students. It is also possible for Master students with a proper plan from the first semester,



**Co-tutelle**



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# **Micro and Nanofabrication Summer Workshop**



**Massachusetts  
Institute of  
Technology**

# Tec.Nano – International Conference in Nanotechnology

**Annual Conference** organized in Monterrey Tec

**Started** in 2018

**Joint effort** between the Undergraduate and Graduate Programs in Nanotechnology, and the Research Office of the School of Engineering

## **Tec.Nano 2018, 28-30 Nov**

- 200 participants



## **Tec. Nano 2019, 21-23 Oct**

- 5<sup>th</sup> Carbon MEMS International Workshop
- 1<sup>st</sup> Health for the Billions Workshop
- <https://www.tec-nano.com/>

