



# Research Group on Mathematical Linguistics (GRLMC)

Rovira i Virgili University,  
Tarragona, Spain



## The Research Group in Mathematical Linguistics - GRLMC

What is the  
GRLMC?

[News](#)

[People](#)

[Jobs](#)

[Doctorates](#)

**NEW**

1st

[INTERNATIONAL  
CONFERENCE  
ON LANGUAGE  
AND](#)

[AUTOMATA  
THEORY AND  
APPLICATIONS  
\(LATA 2007\)](#)

[Poster Web  
page](#)

**NEW**

6th

[INTERNATIONAL  
PhD SCHOOL  
IN FORMAL  
LANGUAGES  
AND  
APPLICATIONS  
2006-2008.](#)

**NEW**

2nd

[INTERNATIONAL  
PhD SCHOOL  
IN LANGUAGE  
AND SPEECH  
TECHNOLOGIES  
2006-2008.](#)

[Research](#)

[Events](#)

[Library](#)

[Publications](#)

[Accommodation](#)

[How to reach  
here](#)

[Pictures](#)

[GRAMMARS](#)

[FORUM](#)

[Contact](#)

[\[ Internal \]](#)

Until recently, the Research Group in Mathematical Linguistics (GRLMC) resided in the building of the Faculties of Letters and Chemistry at Plaça Imperial Tàrraco.



Now the GRLMC has moved to additional offices in the complex of the former Universitat Laboral. To get there, one should take the bus line four ([timetable](#) in PDF). The building is shown on the picture to the right.





What is the  
GRLMC?

[News](#)

[People](#)

[Jobs](#)

[Doctorates](#)

**NEW** [1st  
INTERNATIONAL  
CONFERENCE  
ON LANGUAGE  
AND  
AUTOMATA  
THEORY AND  
APPLICATIONS  
\(LATA 2007\)](#)  
[Poster Web  
page](#)

**NEW** [6th  
INTERNATIONAL  
PhD SCHOOL  
IN FORMAL  
LANGUAGES  
AND  
APPLICATIONS  
2006-2008.](#)

**NEW** [2nd  
INTERNATIONAL  
PhD SCHOOL  
IN LANGUAGE  
AND SPEECH  
TECHNOLOGIES  
2006-2008.](#)

[Research](#)

[Events](#)

[Library](#)

[Publications](#)

[Accommodation](#)

[How to reach  
here](#)

[Pictures](#)

**GRAMMARS**

**FORUM**

[Contact](#)

[ [Internal](#) ]

## News - what's happening in the GRLMC?

(Last updated August 15th, 2006)

**NEW** [Call for papers: 1st INTERNATIONAL CONFERENCE ON LANGUAGE AND AUTOMATA THEORY AND APPLICATIONS \(LATA 2007\) Poster](#)  
[Conference web page](#)

**NEW** [6th INTERNATIONAL PhD SCHOOL IN FORMAL LANGUAGES AND APPLICATIONS 2006-2008](#)

**NEW** [2nd INTERNATIONAL PhD SCHOOL IN LANGUAGE AND SPEECH TECHNOLOGIES 2006-2008](#)

### • [Weekly Seminar of the GRLMC:](#)

Schedule for the next sessions:

- [September 5, 13:00: Bianca Truthe \(Rovira i Virgili University\), On Chain Code Picture Languages of Lindenmayer Systems](#)
- [September 15, 13:00: Reinhard Rapp \(Rovira i Virgili University\), Statistical Machine Translation Based on Non-Parallel Texts](#)
- [September 22, 13:00: Sheng Yu \(Rovira i Virgili University & University of Western Ontario\), State Complexity of Combined Operations](#)

[1st INTERNATIONAL PhD SCHOOL IN LANGUAGE AND SPEECH TECHNOLOGIES 2005-2007. Poster](#)

[5th INTERNATIONAL PhD SCHOOL IN FORMAL LANGUAGES AND APPLICATIONS 2005-2007. Poster](#)

### Older News:

#### 2006:

- [January 9, 10:30: Catalin Ionut Tirnauca](#)  
topic: Weighted Tree Transducers
- [January 16, 13:00: Artiom Alhazov](#)  
topic: New results for the known membrane operations
- [January 23, 16:00: Leonor Becerra Bonache](#)  
topic: Main contributions of her PhD dissertation and some future research directions
- [February 3, 16:00: Gemma Bel Enguix](#)  
topic: Genetic code and verbal language: analogy or homology?
- [February 9, 11:00: Cristina Bibire](#)  
topic: The Power of Correction Queries
- [February 17: TEA Exam](#)
- [February 24, 11:00: Carlo Corrales Delgado](#)  
topic: Internet Information Retrieval
- [February 27, 13:00: Carlos Cruz Reyes](#)
- [March 16, 13:00; Szilárd Zsolt Fazekas](#)  
topic: Scattered Subword Complexity of Primitive Words
- [March 27, 19:00: Mihai Ionescu](#)  
topic: Spiking Neural P Systems
- [March 31, 18:00: Dolores Jiménez López](#)  
topic: Context
- [April 18, 13:00: Alexander Krassovitski](#)  
topic: Petri Net Languages
- [April 25, 13:00: Peter Leupold](#)  
topic: General Idempotency Languages over Small Alphabets
- [May 2, 10:15: Guangwu Liu](#)  
topic: Average-case State Complexity
- [May 18, 13:00: Andrea Vietri \(Università La Sapienza, Roma\)](#)  
topic: Some Combinatorial and Geometrical Approaches to Linguistic Issues
- [May 19: DEA Exam](#)
- [May 19, 18:30: Zoltán Ésik](#)
- [May 22, 17:00: Alexander Okhotin](#)  
topic: Nine Open Problems on Conjunctive and Boolean Grammars
- [June 2, 18:00: Remco Loos](#)  
topic: Time complexity for Splicing systems
- [June 6, 13:00: Gabriela Martín](#)  
topic: Trees as Contexts in Formal Language Generation
- [June 12, 17:00: Areti Panou](#)  
topic: Tree Varieties
- [July 11, 13:00: Florin Manea \(University of Bucharest\)](#)  
topic: Networks of Splicing Processors
- [July 11, 17:00: Florin Manea](#)  
topic: A Generalization of the Assignment Problem
- [June 19, 19:00: Alexander Perekrestenko.](#)  
topic: The Theory of Principles and Parameters (also known as Universal Grammar), and the Head-Driven Phrase Structure Grammar (HPSG)
- [June 23, 18:00: Hebert Perez-Roses \(Universidad de Oriente, Cuba\):](#)  
topic: Complete Presentations of Monoids
- [July 5, 13:00: Catalin Tarnauca](#)  
topic: Learning Regular Tree Languages from Correction and Equivalence Queries
- [July 17, 19:00: Sherzod Turaev](#)  
topic: Grammars controlled by Petri nets
- [July 25, 13:00: Mark-Jan Nederhof \(Rovira i Virgili University and University of Groningen\)](#)  
topic: Effective Computation of Partition Numbers for Probabilistic Context-Free Grammars
- [August 3, 9:30: Abhik Ghosh](#)  
topic: Model Checking and Modelling Asynchronous system with continuous Real Time - Timed Automata Model

[PATTERN RECOGNITION APPROACHES TO MACHINE TRANSLATION \(XXI Tarragona Seminar on Formal Syntax and Semantics, FS&S\) , Francisco Casacuberta, Enrique Vidal \(Technical University of Valencia\), January 24-28, 2005 \(pdf slides\)](#)

[SEMANTIC TYPES AND COMPUTER SCIENCE APPLICATIONS OF SEMIGROUPS \(XXII Tarragona Seminar on Formal Syntax and Semantics, FS&S\) , Vladimir Borshev \(Russian Academy of Sciences and University of Massachusetts Amherst\), Barbara Partee \(University of Massachusetts Amherst\), Dragos Vaida \(University of Bucharest\), April 11-15, 2005](#)



# Research Group on Mathematical Linguistics (GRLMC)

Rovira i Virgili University,  
Tarragona, Spain



What is the  
GRLMC?

[News](#)

[People](#)

[Jobs](#)

[Doctorates](#)

**NEW** [1st  
INTERNATIONAL  
CONFERENCE  
ON LANGUAGE  
AND  
AUTOMATA  
THEORY AND  
APPLICATIONS  
\(LATA 2007\)](#)

[Poster Web  
page](#)

**NEW** [6th  
INTERNATIONAL  
PhD SCHOOL  
IN FORMAL  
LANGUAGES  
AND  
APPLICATIONS  
2006-2008.](#)

**NEW** [2nd  
INTERNATIONAL  
PhD SCHOOL  
IN LANGUAGE  
AND SPEECH  
TECHNOLOGIES  
2006-2008.](#)

[Research](#)

[Events](#)

[Library](#)

[Publications](#)

[Accommodation](#)

[How to reach  
here](#)

[Pictures](#)

[GRAMMARS](#)

[FORUM](#)

[Contact](#)

[ [Internal](#) ]

## Events organized by the GRLMC

### 2000

- Evolution, Grammars and DNA (IX Tarragona Seminar on Formal Syntax and Semantics)
- Representing Information Using Concatenated Strings and Using Biological Macromolecules (X Tarragona Seminar on Formal Syntax and Semantics)
- Array Grammars (XI Tarragona Seminar on Formal Syntax and Semantics) 2001 From Finite to Unconventional in the Theory of Automata and Computation (XII Tarragona Seminar on Formal Syntax and Semantics)
- Complexities: Computational and Descriptive (XIII Tarragona Seminar on Formal Syntax and Semantics)

### 2002

- Bounded Life Resources and Emergence in the Theories of Formal Languages and Systems (XIV Tarragona Seminar on Formal Syntax and Semantics)
- Grammatical Inference: Theory, Algorithms and Applications (XV Tarragona Seminar on Formal Syntax and Semantics)

### 2003

- Distributed Automata and DNA Graphs (XVI Tarragona Seminar on Formal Syntax and Semantics)
- Brainstorming Week on Membrane Computing, Tarragona
- Special Session on Biomolecular Mathematics, First Joint International Meeting between the American Mathematical Society and the Real Sociedad Matemática Española, Sevilla (jointly with T. Head, F. Guzmán and M. Pérez-Jiménez)
- Circular Splicing and the Semiotics of Life (XVII Tarragona Seminar on Formal Syntax and Semantics)
- MolCoNet Workshop on Membrane Computing, Tarragona
- Algebraic Grammar and Rough Set Theory (XVIII Tarragona Seminar on Formal Syntax and Semantics)
- Special Session on Biomolecular Mathematics, Eastern Sectional Meeting of the American Mathematical Society, Binghamton, United States (jointly with T. Head, D. Pixton and M. Ogihara)

### 2004

- Computing with Trees: Transducers and XML (XIX Tarragona Seminar on Formal Syntax and Semantics)
- Formal Languages, Model Theory And Geometric Logic (XX Tarragona Seminar on Formal Syntax and Semantics)

### 2005

- Pattern Recognition Approaches To Machine Translation (XXI Tarragona Seminar on Formal Syntax and Semantics)



# Research Group on Mathematical Linguistics (GRLMC)

Rovira i Virgili University,  
Tarragona, Spain



What is the  
GRLMC?

[News](#)

[People](#)

[Jobs](#)

[Doctorates](#)

**NEW** 1st  
**INTERNATIONAL  
CONFERENCE  
ON LANGUAGE  
AND  
AUTOMATA  
THEORY AND  
APPLICATIONS  
(LATA 2007)**  
[Poster](#) [Web  
page](#)

**NEW** 6th  
**INTERNATIONAL  
PhD SCHOOL  
IN FORMAL  
LANGUAGES  
AND  
APPLICATIONS  
2006-2008.**

**NEW** 2nd  
**INTERNATIONAL  
PhD SCHOOL  
IN LANGUAGE  
AND SPEECH  
TECHNOLOGIES  
2006-2008.**

[Research](#)

[Events](#)

[Library](#)

[Publications](#)

[Accommodation](#)

[How to reach  
here](#)

[Pictures](#)

**GRAMMARS**

**FORUM**

[Contact](#)

[ [Internal](#) ]

## Seminars 2005 - 2006

For comments and discussions, please email the respective author:

(Last updated February 9th, 2006)

- February 9 [Cristina Bibire](#):  
The Power of Correction Queries [PPS](#).
- January 9 [Catalin Ionut Tirnauca](#):  
Weighted Tree Transducers - A Short Introduction [PPT](#).
- October 31 [Cristina Bibire](#):  
Attempts to extend correction queries [PPS](#).
- June 17 [Cristina Bibire](#):  
Characterization of state merging strategies which ensure identification in the limit from complete data (II) [PPS](#).
- April 7 [Guangwu Liu](#):  
Transformations Induced by Transducers [PDF](#).
- March 29 [Peter Leupold](#):  
Evolution and Observation
- March 14 [Pavel Makagonov](#) (Universidad Tecnológica de la Mixteca, México; Moscow Government, Russia), [Mikhail Alexandrov](#) (Instituto Politécnico Nacional, México; Universidad Politécnica de Valencia), [Konstantin Sboychakov](#) (Technical Central Library of Russia) :  
Data Mining: Examples and Software for Decision-Making
- March 8 [Dolores Jiménez López](#):  
Infinite Languages from Finite Ones
- February 28 [Adela Grando](#):  
Eco-grammar Systems as self-adaptive and distributed evolutionary computational models
- February 21 [Mihai Ionescu](#):  
Spiking Neural-Like P Systems - [PPT](#)
- February 16 [Szilard Zsolt Fazekas](#):  
Alternative ways of approaching context-free languages
- February 7 [Adrian Horia Dediu](#):  
Strings and Structures [PDF](#).
- January 31 [Carlos Cruz Reyes](#):  
Image Compression using Weighted Finite Automata. The automata inference algorithm
- January 24 [Liliana Cojocaru](#):  
CD Grammar Systems working in competence mode - Decidability and Complexity results
- January 21 [Cristina Bibire](#):  
Characterization of state merging strategies which ensure identification in the limit from complete data [PPS](#).
- January 10 [Leonor Becerra Bonache](#):  
Learnability of Mildly Context-Sensitive Languages Using Positive Data and Correction Queries

[Older seminars](#)

## Forms

- [Permission form](#)
- [Progress report](#)



# Research Group on Mathematical Linguistics (GRLMC)

Rovira i Virgili University,  
Tarragona, Spain



[What is the  
GRLMC?](#)  
[News](#)  
[People](#)  
[Jobs](#)  
[Doctorates](#)

**NEW** [1st  
INTERNATIONAL  
CONFERENCE  
ON LANGUAGE  
AND  
AUTOMATA  
THEORY AND  
APPLICATIONS  
\(LATA 2007\)](#)  
[Poster Web  
page](#)

**NEW** [6th  
INTERNATIONAL  
PhD SCHOOL  
IN FORMAL  
LANGUAGES  
AND  
APPLICATIONS  
2006-2008.](#)

**NEW** [2nd  
INTERNATIONAL  
PhD SCHOOL  
IN LANGUAGE  
AND SPEECH  
TECHNOLOGIES  
2006-2008.](#)

[Research](#)  
[Events](#)  
[Library](#)  
[Publications](#)  
[Accommodation](#)  
[How to reach  
here](#)

[Pictures](#)  
**GRAMMARS**

[FORUM](#)

[Contact](#)

[ [Internal](#) ]

## Older Seminars

For comments and discussions, please email the respective author:

(Last updated August 10th, 2004)

- [Zoltan Esik](#):  
An Algebraic Characterization of Temporal Logics on Finite Trees [PDF](#).
- [Cristina Bibire](#):  
Languages Generated by Programmed Grammars with Various Graphs [PPS](#).
- [Adela Grando](#):  
Simulating Evolutionary Algorithms with Eco-grammar Systems [PDF](#).
- [Mihai Ionescu](#):  
Inhibiting/De-inhibiting Rules in P Systems [PDF](#), [PS](#) .
- [Remco Loos](#):  
Notions of Parallelism in Natural Computing [PDF](#).
- [Artiom Alhazov](#):  
Systems and Devices Generating Classes of Languages. [PS](#), [PS](#), [Part 2](#)
- [Gemma Bel Enguix](#):  
Introducing Some Elements of Parallelism In Conversation Modeling With Membrane Systems. [PDF](#)
- [Adela Grando](#):  
Two Mechanisms of Parallel and Distributed Computation: Concurrent Programming and Grammar Systems. [PS](#) and the [PPT](#)-presentation.
- [Adela Grando](#) and [Victor Mitrana](#):  
Can PC Grammar Systems Benefit from Concurrent Programming? [PS](#).
- [Mihai Ionescu](#):  
Following the Trace of Objects in Symport/Antiport Systems. [PPT](#), [PDF](#)
- [Liliana Cojocaru](#):  
Communication Complexity of Cooperating Grammar Systems. [PDF 1](#), [PDF 2](#).
- [Tseren-Onolt Ishdorj](#):  
Membrane Operations in P Systems With Active Membranes. [PDF](#)
- [Adrian Horia Dediu](#):  
Applications of Evolutionary Algorithms in Formal Languages and Behaviour Simulation. [PDF](#), [PPT](#), [HTML](#).  
See also [TicTacToe](#) using Evolutionary Algorithms
- [Peter Leupold](#):  
Roots of Formal Languages. [PS](#)
- [Carlos Martín Vide](#) and [Victor Mitrana](#):  
Hybrid Networks of Evolutionary Processors. [PS](#) and archive of background: [ZIP](#).
- [Dr. Linqiang Pan](#):  
Polarizations, Labels, Sequential and Parallel Use of Laws in P Systems with Active Membranes. See some related articles: [I](#) and [II](#).
- [Dr. M. Dolores Jiménez López](#):  
General Natural Syntax. [PPT](#).
- [Leonor Becerra Bonache](#):  
Learning Mild Context-Sensitiveness: Toward Understanding Children's Language Learning. [PDF](#).
- [Remco Loos](#):  
A Non-Reflexive Definition of Splicing. [PS](#).
- [Benedek Nagy](#):  
Derivations in Chomsky-type grammars in mirror of parallelism. [PDF](#), [PPT](#).
- [Gabriela Martín](#):  
A Possible Formal Framework for Developmental Systems. [PDF](#).
- [José M. Sempere](#):  
New Aspects of Watson-Crick Finite Automata. [PDF](#).
- [Maribel Romero](#):  
Intensional Noun Phrases with 'know' and 'be'. [PDF](#).

Papers link: <http://www.ling.upenn.edu/~sanguesa/papers.html>