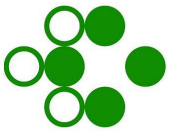

Recreational Mathematics Colloquium III

Board Game Studies Colloquium XVI

BOOK OF ABSTRACTS

University of Azores
April 3rd - April 6th, 2013

Organization:

Ludus Association
University of Azores

Organizing Committee:

Alda Carvalho (ISEL, Portugal)
Ana Paula Garrão (University of Azores, Portugal)
Carlos Santos (ISEC, Portugal)
Jorge Nuno Silva (University of Lisbon, Portugal)
Margarida Dias (University of Azores, Portugal)
Ricardo Cunha Teixeira (University of Azores, Portugal)

Scientific Committees:

Recreational Mathematics	Board Game Studies
Alda Carvalho, Portugal	Alex de Voogt, USA
Carlos Pereira dos Santos, Portugal	Edite Alberto, Portugal
Colin Wright, UK	Fernanda Frazão, Portugal
David Singmaster, UK	Irving Finkel, UK
Ilda Perez, Portugal	Jorge Nuno Silva, Portugal
João Pedro Neto, Portugal	Lídia Fernandes, Portugal
Jorge Nuno Silva, Portugal	Thierry Depaulis, France
Ricardo Cunha Teixeira, Portugal	Ulrich Shädler, Switzerland
Richard Nowakowski, Canada	
Robin Wilson, UK	

Sponsors:

1 Foreword

"Recreational Mathematics" is a problematic expression. For some people, like most professional mathematicians, Mathematics is lots of fun; but for others, like some students, Mathematics can be a nightmare.

Historically, we know that some mathematical research topics are deeply linked to puzzles and games, probability theory emerged from the analysis of chance games, graph theory was born when Euler proved that you cannot cross all the Bridges of Königsberg just once. Many other examples come to mind.

Our Colloquium will be a Show and Tell of bright pearls of Mathematics, with varied levels of sophistication, entertaining many audiences. Its main goal is to foster mathematical appreciation, an important step if we are to see improvements in its practice.

University of Azores and Ludus Association organize the Recreational Mathematics Colloquium III.

The International Society for Board Game Studies holds yearly colloquia in which scholars, university professors, museum curators, historians, archaeologists, psychologists, mathematicians, game inventors, collectors and others share their research results on board games. Previous BGS colloquia have been held in the Netherlands, Italy, Switzerland, Spain, Germany, USA, UK, Brazil, Austria, Portugal, Israel, France, Belgium.

The University of Azores and the Ludus Association organize the Board Game Studies Colloquium XVI.

Both colloquia will be hosted by the University of Azores.

http://ludicum.org/ev/rm/13

http://ludicum.org/ev/bgs/13

The Organizing Committee

3 Program - Recreational Mathematics

Wednesday, 3rd April, amphitheatre C

8:30 **Welcome and registration**

9:15 **Opening Session**

9:30 **Understanding cubic dice development: recent experimental results (RM+BGS)**
Alex Voogt, American Museum of Natural History

10:30 **Counting with counters: Gerbert's abacus (RM+BGS)**
Jorge Nuno Silva, University of Lisbon

11:00 Coffee-Break

11:30 **An update to the multilated chessboard (RM+BGS)**
Colin Wright, Liverpool Mathematical Society

12:30 **Quadratum (RM+BGS)**
Helena Melo, University of Azores & CMATI

13:00 Break for lunch

14:30 **Solving dotty problems - an introduction to graph theory**
Robin Wilson, Open University

15:30 **Mathematics of soccer**
Alda Carvalho, ISEL & CEMAPRE/ISEG

16:00 Coffee-Break

16:30 **The Humble-Ehrhends triangle mistery**
Jorge Buescu, University of Lisbon

17:00 **Symmetry groups: identifying patterns in Azorean heritage**
Vera Moniz, University of Azores

17:30 **The Golden Ratio - from Euclid to Almada Negreiros**
Carlota Simões, University of Coimbra

18:30 **Break Time**

19:00 Welcome Cocktail

Thursday, 4th April, amphitheatre C

9:30 **Piet Hein & the murder of NIM (RM+BGS)**
Thane Plambeck, Counterwave, inc

10:30 **What is a "good" board game? (RM+BGS)**
Carlos Santos, ISEC

11:00 Coffee-Break

11:30 **Three new math-games for experiencing the interplay between algebra, geometry, and symmetry (RM+BGS)**
Oliver Labs, Universitat des Saarlandes

12:30 **Ancient egyptian board games: an historical account (RM+BGS)**
Joaquim Eurico Nogueira, CELC & FCT-UNL

13:00 Break for lunch

15:00 Social

Friday, 5th April, amphitheatre C (except the Open to All sessions)

9:00 **Order in the ranks (RM+BGS)**
Pedro J. Freitas, University of Lisbon

10:00 Coffee-Break

10:30 **Mathematical circus (Open to All)**
Ludus Association

11:10 **Presentation of Mathematics of Planet Earth 2013 (Open to All)**
Carlota Simões, University of Coimbra, Ana Paula Garrão, University of Azores

11:20 **Presentation of Mathematics of Planet Earth 2013 (Open to All)**
Jorge Nuno Silva, José Francisco Rodrigues, University of Lisbon

11:40 **Presentation of Mathematics of Planet Earth 2013 (Open to All)**
Ricardo Teixeira, University of Azores

12:00 **Magic show (Open to All)**
Lennart Green, World Champion close-up/card Magician

13:00 Break for lunch

14:30 **Lewis Carroll in Numberland**
Robin Wilson, Open University

15:30 **Problem solving through crafts and challenges**
Stephanie Cabral, University of Azores

16:00 Coffee-Break

16:30 **Treason strategies**
João Cabral, University of Azores

17:00 **Jogo do paralelo**
Raquel Faria, University of Azores

17:30 **Can mathematical exhibitions be recreational?**
José Francisco Rodrigues, University of Lisbon

18:00 **Contest "Um conto que contas"**
Helena Melo, University of Azores & CMATI

18:30 **Interesting Announcements (RM+BGS)**
Jorge Nuno Silva, Carlos Santos, Ludus Association

19:30 Conference Dinner

Saturday, 6th April, amphitheatre C

9:30 **Game profiling (RM+BGS)**
Richard Nowakowski, Dalhaousie University

10:30 **Why "Zermelo's Theorem" is called "Zermelo's Theorem" ? (RM+BGS)**
Lisa Rougetet, University of Science and Technology of Lille

11:00 Coffee-Break

11:30 **Vanishing area puzzles (RM+BGS)**
David Singmaster, Retired professor of London South Bank University

12:30 **Lasker and mathematics (RM+BGS)**
Jurgen Stigter, TWA

13:00 Break for lunch

14:30 **Turning the lights out on graphs**
António Machiavelo, University of Oporto

15:30 **Combinatorial games and computability**
Urban Larsson, Chalmers, University of Gothenburg

16:00 **Counting the number of sudoku's by importance sampling simulation**
Ad Ridder, University Amsterdam

16:30 Closing Session

Three new Math-Games for Experiencing the Interplay between Algebra, Geometry, and Symmetry(RM+BGS)
Oliver Labs,Universitat des Saarlandes

For the exhibition Forms and Formulas at Lisbon, Portugal, we developed a game called "Mind Curver" in 2012 based on ideas by J.N. Silva, J. Rodrigues, A. Matt, and the speaker. The player is slowly introduced into the world of implicit equations for plane curves. This is a quite new experience for most of them because such equations play almost no role in many school curricula. The new approach fascinates and focusses the interplay between algebra and geometry. For this talk, we extended this game to the third dimension by letting the player find the equation of surfaces in space.

In the second part of the talk, we shortly present a work in progress: A game called Mandala Designer which aims to bring the fascination of symmetry also to younger kids of approximately 4-5 years. It allows them to create symmetric pictures themselves. While playing with different symmetries, they may even encounter the fascination of divisible numbers before knowing the notion of division at all.

Order in the ranks(RM+BGS)
Pedro Freitas, University of Lisbon

We will discuss some mathematical properties of a full order of the deck, going back to 17th century Gaspar Cardozo Sequeira, and some old and new magic tricks than can be done using this order.

Jogo do Paralelo(RM)
Raquel Faria, University of Azores
João Cabral, University of Azores
Helena Melo, University of Azores

The name of the game is "Jogo do Paralelo". This game is played by two players, using pieces in the form of equilateral triangles. Each triangle has a colored inscribed triangle using the middle points of the sides of the piece. The pieces must be placed side-by-side with the main goal of obtain parallel segments with size two and three with the same color. This game requires great concentration, geometric vision and an implementation of a strong strategic.

Game Profiling (RM+BGS)
Richard Nowakowski, Dalhaousie University

In this (television) era of forensic science, a game should have it fingerprints