

# Dr. Laurent Jolissaint

## Curriculum Vitae - July 2008

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### Education

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#### **2000 PhD in Optical Instrumentation for Astronomy**

University of Geneva (Switzerland)

#### **1999 Post-graduate Course, Optics & Optical Design**

Swiss Federal Institute of Technology, Lausanne (Switzerland)

#### **1996 Master in Physics, Astronomical Telescope Optics**

University of Geneva (Switzerland)

#### **1991 Diploma in Electrical Engineering, Control Systems & Nuclear Energy Technology**

Engineering School of Geneva (Switzerland)

### Professional Experience

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**2007-now** Adaptive optics specialist with the Observatory of Leiden, Leiden University (Netherlands).

**2000-2007** Research associate in adaptive optics with the Herzberg Institute of Astrophysics, National Research Council of Canada, Victoria, British Columbia (Canada).

**2000-2007** Adaptive optics consulting for the University of Victoria Mechanical Engineering Department, Victoria, British Columbia (Canada).

**1996-2000** Adaptive optics research at the University of Geneva and CSEM (Swiss Centre for Electronics and Microsystems) (Switzerland).

### Teaching Experience

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**2008** Supervision of master thesis projects in optics at the University of Leiden (Netherlands).

**2007** Teaching Optical Turbulence and Adaptive Optics Theory at the Technical University of Delft (Netherlands).

**2003** Teaching Fourier Optics and Turbulence Theory at the University of Victoria, British Columbia (Canada).

**2002-2004** Supervision of master thesis projects in optics at the University of Victoria Physics and Mechanical Engineering Departments, Victoria, British Columbia (Canada).

### Research Grants

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**2002** CHF 75'000.- Advanced scientist research grant from the Swiss National Science Foundation, for the project entitled "Estimating the Adaptive Optics Performance in Multi-conjugated Mode and Application to the Improvement of the Angular Resolution of 10-100 meters class Astronomical Telescopes."

**2000** CHF 50'000.- Beginner scientist research grant from the Swiss National Science Foundation, for the project entitled "Adaptive Optics in the Era of 10-100 meters class Astronomical Telescopes: new Scientific and Technical Challenges."

## Current Projects

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- 2008-...** Design of METIS, a mid-infrared adaptive optics instrument for the European Extremely Large Telescope project (European Southern Observatory)
- 2008-...** Analysis and modeling of Shack-Hartmann wavefront sensors performance for adaptive optics systems
- 2007-...** Adaptive optics system performance analysis for MUSE, an integral-field spectrograph for the Very Large Telescope Observatory (European Southern Observatory)
- 2007-...** Design of ASSIST's optical turbulence generator, a test-bench for the Adaptive Optics Facility project (European Southern Observatory)
- 2005-...** Analysis and modeling of deformable mirrors characteristics for optical aberrations correction
- 2004-...** Continuous development and maintenance of modeling tools for adaptive optics correction of giant segmented telescopes aberrations (software OPTICA)
- 2001-...** Continuous development and maintenance of modeling tools for adaptive optics correction of optical turbulence (software PAOLA, distributed to 60 international research groups)
- 2001-...** Development of methods to assess adaptive optics systems performance from control loop data (software OPERA).

## Achievements

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- 2006-2007** Performance prediction for the Victoria open loop adaptive optics test-bed experiment (Herzberg Institute of Astrophysics, Victoria, Canada).
- 2005-2006** Conceptual design analysis for the Thirty Meter Telescope project adaptive optics system.
- 2005** Optical Turbulence Generators: Technology Review and Specifications Analysis for the Testing of Adaptive Optics systems (a designer guide).
- 2004-2005** Extreme contrast adaptive optics studies for the Thirty Meter Telescope project.
- 2004** Organization of the 1st International Workshop on Adaptive Optics Point Spread Function Reconstruction (35 participants, sponsored by the Center for Adaptive Optics, U.S. National Science Foundation).
- 2003-2005** Turbulence generator development for the University of Victoria Adaptive Optics Laboratory (supervision of a master thesis project).
- 2003-2004** Ground Layer Adaptive Optics analytical modeling for the Very Large Optical Telescope Canadian project.
- 2002-2003** Pyramid wavefront sensor laboratory performance analysis at the University of Victoria Physics and Mechanical Engineering Departments (supervision of a master thesis project).
- 2002-2003** Telescope environment optical perturbation studies for the Very Large Optical Telescope Canadian Project (dome seeing assessment).
- 2002-2003** Participation to the commissioning of Gemini North Adaptive Optics system (ALTAIR).
- 2000-2003** Adaptive optics studies for the science case of the Very Large Optical Telescope Canadian project.
- 1996-2000** Feasibility Study of a Tip-Tilt Adaptive Optics System for a 1.2-m Telescope, and astronomical applications analysis (PhD Thesis).
- 1996-1998** Study and realization of an optical turbulence generator for adaptive optics laboratory testing (PhD Thesis).
- 1996** Study and realization of a wavefront sensor for the optical alignment of EULER and MERCATOR, 1.2-m

telescopes of Geneva Observatory (Switzerland) and Leuven University (Belgium) (Master Thesis).

**1991** Characterization of the driving motors control systems for EULER and MERCATOR 1.2-m Telescopes.

## **Computer skills**

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**Applications** IDL, MATLAB, MAPLE, ZEMAX

**Languages and OS** FORTRAN, PASCAL, UNIX, MAC OS X

## **Languages**

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French (native), English (fluent), German and Spanish (conversational knowledge)