## Contents

<table>
<thead>
<tr>
<th>Part I Adaptive Optics Instrumentation, Data Acquisition and Reduction Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NAOMI – Adaptive Optics at the WHT</strong></td>
</tr>
<tr>
<td>C.R. Benn, S. Els, T. Gregory, I. Söchting, R. Østensen ................................ 3</td>
</tr>
<tr>
<td><strong>Status of Adaptive Optics Projects at ESO</strong></td>
</tr>
<tr>
<td>N. Hubin  ......................................................................................... 7</td>
</tr>
<tr>
<td><strong>Preliminary Commissioning Results of Altair</strong></td>
</tr>
<tr>
<td><strong>Lyot Coronagraphy at the Palomar</strong></td>
</tr>
<tr>
<td>and Phase-Mask Coronagraphy at the VLT</td>
</tr>
<tr>
<td>A. Boccaletti, J.-C. Augereau, G. Chauvin, P. Rivaud, J. Baudrand,</td>
</tr>
<tr>
<td>F. Lacombe, D. Rowan, A.-M. Lagrange, P. Baudoz ....................................... 25</td>
</tr>
<tr>
<td><strong>PIGS – A New Wavefront Sensor Concept for ELTs</strong></td>
</tr>
<tr>
<td>S. Kellner, R. Ragazzoni, W. Güssler, E. Diolaiti, J. Farinato,</td>
</tr>
<tr>
<td>C. Adric, R. Meyers, T. Morris, A. Ghedin ........................................... 31</td>
</tr>
<tr>
<td><strong>Adaptive Optics for MUSE</strong></td>
</tr>
<tr>
<td>M. Le Louarn, N. Hubin, B. Delabre .................................................................. 36</td>
</tr>
<tr>
<td><strong>NAOS-CONICA Observational Capabilities</strong></td>
</tr>
<tr>
<td>R. Lenzen ......................................................................................... 42</td>
</tr>
<tr>
<td><strong>NACO-SDI: A Novel Simultaneous Differential Imager</strong></td>
</tr>
<tr>
<td>for the Direct Imaging of Giant Extra-Solar Planets</td>
</tr>
<tr>
<td>R. Lenzen, L. Close, W. Brandner, M. Hartung, B. Biller ................................ 46</td>
</tr>
<tr>
<td><strong>One Year of NACO Operations</strong></td>
</tr>
<tr>
<td>N. Ageorges, L.E. Tucconi-Garman, C. Lidman ............................................... 53</td>
</tr>
<tr>
<td><strong>Note on Spectroscopy with Adaptive Optics</strong></td>
</tr>
<tr>
<td>M. Goto, and the Subaru AO/IRCS Teams ................................................................ 63</td>
</tr>
<tr>
<td><strong>Quality Control and Data Flow Operations of NAOS-CONICA</strong></td>
</tr>
<tr>
<td>W. Hummel, C. Lidman, N. Ageorges, Y. Jung, O. Marco, D. Dobrzycka .................. 69</td>
</tr>
</tbody>
</table>
VIII  Contents

Comparison of Astrometry and Photometry
of the Galactic Bulge Between HST-NICMOS and NACO Data
G. Pugliese, D. Bonaccini, M. Zoccali, A. Renzini, L. Tacconi-Garman . . . 75

Point Spread Function Analysis of the NACO Instrument
at the VLT
K.R.W. Tristram, M.A. Prieto ........................................... 79

Correlation Image Processing of Diagnostic Raw Data
Collected with NAOS-CONICA
H. Weghorn, R. Lenzen, W. Brandner, M. Hartung ...................... 83

Wide-Field Post-Processing of Adaptive Optics Images
A.R. Weiss, S. Hippler, M. Feldt ....................................... 87

Simulations of Adaptive Optics with a Laser Guide Star
for SINFONI
A.G.A. Brown, E. Fedrigo, P. van der Werf .............................. 94

High Order Adaptive Optics Simulation Tool for VLTs and ELTs
R. Conan, T. Fusco, G. Roussel ....................................... 97

Calibration of AO Systems. Application to NAOS-CONICA
and Future “Planet-Finder” Systems
T. Fusco, G. Roussel, A. Blanc ....................................... 103

The Unique Antarctic Atmosphere:
Implications for Adaptive Optics
J.S. Lawrence, M.C.B. Ashley, M.G. Burton, J.P. Lloyd, J.W.V. Storey . . 111

Part II  The Sun and (Exo-) Planets

Adaptive Optics Observations of the Sun
C.U. Keller ................................................................. 119

Penumbral Line Asymmetries Using KAOS
D. Soltan, T. Berkefeld, R. Schlichenmaier, A. Tritschler, L.R. Bellot Rubio 129

Simulations on Solar AO Systems
R. Srivastavan, A. Raja Bayanna, P. Venkatakrishnan ........................ 132

Selected Examples of Solar and Extra-Solar Planetary Science
with AO
L.M. Close, R. Lenzen, B. Biller, W. Brandner, M. Hartung ............... 136
Hot Massive Planets Around Nearby Young Stars –
A Search with NACO at the VLT
E. Masciadri, R. Mundt, C. Alvarez, T. Henning, W. Brandner,
D. Barrado-Nuñes, R. Neuhäuser ........................................ 146

Direct Detection of Exoplanets
with Future Adaptive Optics Systems
C. Moutou, A.-M. Lagrange, J.-L. Beuzit, D. Mouillet .................. 152

Search for Sub-Stellar Companions Using AO –
First Results Obtained with NAOS-CONICA
M. Mugrauer, R. Neuhäuser, E. Guenther, W. Brandner, J. Alves,
M. Ammler ................................................................. 158

Part III Star Formation and Brown Dwarfs

Adaptive Optics and Star Formation
F. Ménard ................................................................. 163

High Angular Resolution Observations of Binary Brown Dwarfs
H. Bouy, W. Brandner .................................................. 174

Close Companions to Nearby Young Stars
from Adaptive Optics Imaging on VLT and Keck
K.E. Haisch Jr., R. Jayawardhana, A. Brandeker, D. Mardones ...... 177

A VLT/NACO Survey for Triple Systems
among Visual Pre-Main Sequence Binaries
S. Correia, T. Ratzka, M.F. Sterzik, H. Zinnecker ........................ 183

Coupled Adaptive Optics and Integral Field Spectroscopy
of Pre-Main-Sequence Stars
P.J.V. Garcia, C. Doyon, P. Ferruit ..................................... 189

An Adaptive Optics Search for Binaries
in the Orion Nebula Cluster
R. Köhler, M.G. Petz-Gotzens, M. McCaughrean, J. Bouvier, G. Duchêne,
A. Quirrenbach .......................................................... 197

A Search for Close Companions in Sco OB2
T. Kowatsonohen, A. Brown, H. Zinnecker, L. Kaper, S. Portegies Zwart,
A. Guandalins .......................................................... 203

Dual Imaging Observations of Circumstellar Matter
in TW Hydrae: The NACO View
N. Huélamo, W. Brandner .............................................. 206
Near Infrared AO Spectroscopy of Edge-On Protoplanetary Disks with Subaru IRCS

Size Distribution of Disks in the Trapezium Cluster
S.M. Vicente, J. Alves .................................................. 214

The Origin of the Molecular Flow in Orion BN/KL: NAOS-CONICA Observations
D. Rouan, Y. Clénet, F. Lacombe, E. Gendron, D. Field, J.-L. Lemaire ... 217

NACO and PUEO-GríF Investigating Small Scale Structures and Velocity Fields in OMC1
J.L. Lemaire, D. Field ................................................. 223

Shocks and Star Formation in Orion: First Light with GríF
M. Gustafsson, L.E. Kristensen, Y. Clénet, D. Field, J.-L. Lemaire,
G. Pineau des Forêts, D. Rouan, E. Le Coarer ................................ 229

Imaging in Orion:
NAOS-CONICA Adaptive Optics on the ESO-VLT
M. Gustafsson, F. Lacombe, E. Gendron, D. Rouan, Y. Clénet, D. Field,
J.-L. Lemaire, A.-M. Lagrange, D. Mouillet, G. Rousset, B. Servan,
C. Marlot ................................................................. 232

AO-Assisted Observations of Ultra-Compact H II Regions
E. Puga, M. Feldt, C. Alvarez, T. Henning, B. Stockhum .................. 236

The Structure of the Young Stellar Outflows Revealed by High Angular Resolution [Fe II] λ 1.644 μm Spectroscopy
T.-S. Pyo, M. Hayashi, N. Kobayashi, A.T. Tokunaga, H. Terada,
M. Goto, H. Takami, N. Takato, W. Güessler, S. Oya, Y. Hayano,
Y. Kamata, Y. Minowa, T. Usuda, M. Ige, T. Yamashita ............. 242

Resolving the Arches Starburst Cluster in the Galactic Center with NAOS-CONICA
A. Stolle, W. Brandner ................................................ 248

Part IV  Evolved Stars

Adaptive Optics Science with the MMT Adaptive Secondary:
Mid-IR AO Imaging of the Post-AGB Star AC Her
L.M. Close, B. Biller, W.F. Hoffmann, P.M. Hinz, J.H. Bieging, F. Wildi,
Near Infrared Imaging of Late Type Stars
Using CIAO on the Subaru Telescope
K. Marukawa, H. Suto .......................... 261

Spatially Resolved Spectroscopy of Proto-Planetary Nebulae
M. Goto, W. Gäßler, Y. Hayano, M. Iye, Y. Kamata, T. Kanzawa,
N. Kobayashi, Y. Minowa, D.J. Saint-Jacques, H. Takami, N. Takato,
H. Terada .......................... 264

NAOS/CONICA Imaging of the Nebula
Surrounding IRAS 17340–3757
M.E. van den Ancker, E.A. Magnier, L.B.F.M. Waters .......................... 270

Part V  Galactic Center and AGN

Inward Bound:
High Resolution AO Observations of the Galactic Center
R. Genzel, T. Ott, A. Eckart, R. Schödel, T. Alexander .......................... 275

Infrared Excess Sources in the Galactic Center Stellar Cluster
A. Eckart, J. Moutoula, T. Viehmann, C. Straubmeier, N. Mowawad,
R. Schödel, R. Genzel, T. Ott .......................... 279

A Thermal Detection of Sgr A* ?
Y. Clénet, D. Rowan, D. Gratadour, E. Gendron, F. Lacombe .......................... 286

Nuclear Dynamics and Star Formation of AGN

NGC1068:
Registration with Narrow Field of View and Morphology
E. Galliano, D. Alloin .......................... 298

NACO Observations of NGC 1068
D. Gratadour, D. Rowan, Y. Clénet, E. Gendron, F. Lacombe .......................... 305

The Nucleus of Centaurus A with NACO
N. Höring, H.-W. Rix, M. Hartung, A. Prieto, R. Lenzen,
K. Meisenheimer .......................... 311

Tracing the Coronal Line Region in AGN with VLT/NACO:
The Very First Results
O. Marco, A. Prieto .......................... 315
Part VI  Galaxies and Cosmology

Adaptive Optics Observations of Stars in Globular Clusters and Nearby Galaxies
T.J. Davidge .................................................. 323

Surface Brightness Fluctuations: A Case for Extremely Large Telescopes

A Near-IR Adaptive Optics Imaging Survey of Nearby QSOs
O. Guyon, D. Sanders, A. Stockton ............................... 338

Altair Observations of 3C273
J.B. Hutchings, J. Stoess, J.-P. Vérain, F. Rigaut ...................... 344

Near-Infrared High Resolution Spectroscopy of High-z QSO Absorption Systems
with the Subaru Adaptive Optics System
N. Kobayashi, T. Tsujimoto, Y. Minowa ............................ 352

Survey of a Wide Area with NACO (SWAN):
Cosmology Near the VLT's Diffraction Limit
A.J. Baker, R.I. Davies, M.D. Lehnert, R. Genzel, R. Hofmann, S. Rahien,
N.A. Thalte, W.J. Viehhauser .................................. 359

Subaru Deep Field with Adaptive Optics
Y. Minowa, N. Kobayashi, Y. Yoshii, T. Tolani, H. Takami, N. Takato,
Y. Hayano, M. Iye ............................................. 365

Using AO to Identify Damped Lyman α Absorption Systems at Redshift z ~ 2
K. Roth, A. Baker, M. Edmunds, O. Guyon ......................... 369

Selection of Extragalactic Targets for AO and VLTI Observations
J.Zuther, A. Eckart, W. Voges, T. Bertlum, C. Straubmeier .......... 375

Distance Measurement with Adaptive Optics-Assisted Imaging:
Looking Towards the Future
D.J. Butler ................................................... 378

Author Index ................................................. 385
Science with Adaptive Optics
Proceedings of the ESO Workshop Held at Garching,
Germany, 16-19 September 2003
Brandner, W.; Kasper, M.E. (Eds.)
2005, XX, 388 p., Hardcover
ISBN: 978-3-540-25034-0