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5th Workshop on Galactic Chemodynamics

Publications of the Astronomical Society of Australia, 2004, **21**, i–ii

The Fifth Workshop on Galactic Chemodynamics

Brad K. Gibson[1,2] *and Daisuke Kawata*[1]

[1] Centre for Astrophysics & Supercomputing, Swinburne University, Hawthorn VIC 3122, Australia
[2] E-mail: bgibson@astro.swin.edu.au

From 1992 to 1995, the annual Workshops on Galactic Chemodynamics were recognised as *the* primary cross-disciplinary meetings for theorists and observers interested in understanding the formation and evolution of galaxies — in particular, the Milky Way.[1] The eight years subsequent to the Fourth Workshop have seen an extraordinary expansion in the field of chemodynamics, driven not only by the obvious advances in computational power, but by an incredible wealth of new observational data — ranging from the discovery of multiple chemo-kinematical substructures in the Milky Way and M31 halos, to the discovery of the most metal-poor object known in the Universe (also within the halo of the Milky Way). Further, the recognition that "near-field cosmology" — deconstructing the formation and evolution history of our Milky Way on a star-by-star basis — was the primary science driver for ambitious next-generation surveys and facilities such as the RAdial Velocity Experiment (RAVE)[2] and the European Space Agency's *Gaia* mission[3], led us to believe that a Fifth Workshop on Galactic Chemodynamics (GCDV) was long overdue.

In September 2002, we put out a call for participation in GCDV and were overwhelmed with the number of positive responses. Our goal with GCDV was to once again bring together the leaders in the computational and observational fields, in order to galvanise efforts related to deconstructing the history of formation of the Milky Way.

GCDV took place during 9–11 July 2003, at Swinburne University, Melbourne, Australia. A remarkable 46 participants from 13 countries attended the Workshop; 28 of the 36 talks presented there have been included in these proceedings.

The broad topics covered during the meeting included:

- the formation of the Milky Way in a Cold Dark Matter universe: merging versus smooth accretion
- the connection between the halo, bulge, and thick + thin disk components
- correlations between chemical and dynamical properties of stars in the Milky Way

[1] The locations for the first four Workshops on Galactic Chemodynamics were Clemson (1992), Kiel (1993), Livermore (1994), and Ringberg (1995).
[2] `http://astronomy.swin.edu.au/RAVE/`
[3] `http://astro.estec.esa.nl/GAIA/`

Table 1. List of participants, home institutions, and manuscripts

Johannes Andersen	Copenhagen	p. 129
Dominik Argast	Basel	p. 161
Tim Beers	Michigan State	p. 207
Kenji Bekki	UNSW	p. 167
Joss Bland-Hawthorn	AAO	p. 110
Masashi Chiba	Tohoku	p. 237
Chris Brook	Swinburne	p. 153
David Burstein	Arizona State	
Bruce Carney	North Carolina	p. 134
Tim Connors	Swinburne	p. 222
Lisa Elliott	Monash	
Chris Flynn	Tuorla	pp 126, 153
Ken Freeman	ANU	p. 110
Ortwin Gerhard	Basel	
Brad Gibson	Swinburne	pp 153, 216, 222
Stefan Harfst	Kiel	p. 228
Amina Helmi	Groningen	p. 212
Gerhard Hensler	Vienna	pp 188, 228
Janne Holopainen	Tuorla	p. 153
Akihiko Ibukiyama	NAOJ	p. 121
Inese Ivans	Caltech	
Daisuke Kawata	Swinburne	pp 153, 222
Alexander Knebe	Swinburne	p. 216
Chiaki Kobayashi	MPA	p. 183
Hyun-chul Lee	Swinburne	p. 153
Geraint Lewis	Sydney	p. 203
Steve Majewski	Virginia	p. 197
Masao Mori	Senshu	p. 232
Naohito Nakasato	Tokyo	p. 171
Julio Navarro	Victoria	
Birgitta Nordström	Lund	p. 129
Laura Portinari	TAC	p. 144
Simone Recchi	MPA	p. 157
Agostino Renda	Swinburne	p. 153
Céline Reylé	Besançon	p. 138
Markus Samland	Basel	pp 161, 175
Arnaud Siebert	Arizona	
Rainer Spurzem	Heidelberg	p. 188
Takeru Suzuki	Kyoto	p. 148
Matthias Steinmetz	Potsdam	
Christian Theis	Vienna	pp 179, 188, 228
Chris Thom	Swinburne	
Patricia Tissera	IAFE	p. 192
Eline Tolstoy	Groningen	
Takuji Tsujimoto	NAOJ	p. 242
Hideki Yahagi	NAOJ	

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- the (homogeneous and/or inhomogeneous) chemical enrichment history of galaxies
- evolution of the Galactic multi-phase interstellar medium
- self-regulating star formation and chemodynamics
- computational methods of galaxy evolution (N-body, Smoothed Particle Hydrodynamics, Adaptive Mesh Refinement).

The Scientific Organising Committee was charged with ensuring that the ambitious scientific scope was met, and as the 28 papers presented in these proceedings demonstrate, they appear to have succeeded. The SOC was Chaired by Brad Gibson (Swinburne), and supported ably by Andi Burkert (Munich), Gerhard Hensler (Vienna), and Daisuke Kawata (Swinburne).

The success of GCDV can be traced in no small part to the support provided by the Local Organising Committee. While Chaired by Brad Gibson and Daisuke Kawata, it was really the efforts of Michelle Jolley, Chris Brook, and Chris Thom that allowed the Workshop to function seamlessly.

The publication of the proceedings of GCDV was made possible through the support of the *Publications of the Astronomical Society of Australia*. We especially wish to acknowledge the tireless efforts of its editors Louise Hartley and Richard Hecker. Further, while Brad Gibson and Daisuke Kawata oversaw the editorial duties for these particular proceedings, their editorial assistants — Chris Brook, Yeshe Fenner, Agostino Renda, and Chris Thom — deserve special mention for chasing down authors and referee reports for each of the manuscripts.

Finally, we would like to express our thanks to each of the Workshop participants. The overwhelming response to the Call for a Fifth Workshop on Galactic Chemodynamics (we had anticipated fewer than 20 interested participants!) demonstrates the need for the community to gather for such targeted meetings on a more regular basis. We can only hope that the primary legacy of GCDV will be the re-establishment of an annual (or at least biennial) Galactic Chemodynamics Workshop series — it is clear that the demand and desire exists.

Brad K. Gibson
Daisuke Kawata
June 2004