

COMMISSION 7

CELESTIAL MECHANICS AND DYNAMICAL ASTRONOMY (*MÉCANIQUE CÉLESTE* *ET ASTRONOMIE DYNAMIQUE*)

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PROCEEDINGS BUSINESS SESSION, 5 August 2009

1. Introduction

The meeting began at 11:00 am with a brief address by outgoing president Burns highlighting the most relevant advances in Celestial Mechanics that occurred in the last 3 years.

2. Membership status

Then, Burns presented a summary of the Commission membership in quantitative terms. There are 275 members presently active and 38 new applicants. He asked for a minute of silence in memory of the 6 deceased members during the last triennium: Roger Broucke (1932–2005), Jacques Henrard (1940–2008), Božidar Jovanović (1932–2008), J. Derral Mulholland (1934–2008), Viktor Novoselov (1925–2007), and Arpad Pal (1925–2006).

3. Past activities

The president gave a summary of the activities of the Commission during the last 3 years, emphasizing the following issues:

- organization of the Symposium 236: Near Earth Objects, our Celestial Neighbors: Opportunity and Risk, in Prague (Czech Republic), in 2006;
- preparation of the Triennial Report.

Ferraz Mello recalled that the Commission also proposed and organized Symposium 249: EXOPLANETS, Detection, Formation and Dynamics, in Suzhou (China), in 2007.

4. New officers

President Burns introduced the Commission Officers for the next triennium: Zoran Knežević (president), Alessandro Morbidelli (vice-president), Evangelia Athanassoula, Renu Malhotra, and Stanton Peale (second term), Jacques Laskar, Seppo Mikkola, and Fernando Roig (first term). Roig will act as the Commission's secretary.

Burns stated that the first activity for the new Organizing Committee (OC) will be to prepare the Terms of Reference of the Commission.

5. Report on the journal *Celestial Mechanics and Dynamical Astronomy*

Ferraz Mello, editor-in-chief of the journal, presented his report for the last triennium (see Appendix). He pointed out that:

- the time to reach final decision on submitted papers has decreased,
- the ratio between accepted and refused papers has stayed constant at approximately 50%,
- the journal adopted a policy of publication of selected papers from conferences, but not proceedings,
- the present impact factor (IF) computed over 2 years is above 1.5,
- the IF computed over 5 years is more stable than the IF over 2 years, which shows large fluctuations,
- the number of citations of an article becomes relevant only after the 2nd and 3rd years from publication.

All this information is also available at <http://www.astro.iag.usp.br/~sylvio/celmech.html>

6. Address by incoming president

The outgoing president then passed the word to the incoming president Knežević, who congratulated Burns for his services to the community in the past triennium, smooth running of the Commission, and for successful representation of Commission with Division I and the IAU.

7. Future activities

Then, Knežević introduced the plans for the next triennium:

(a) To organize another symposium on Celestial Mechanics. It is necessary to define the subject, the organizers, and the dates. Knežević pointed out that it could be organized only in 2011 or 2012, because the proposal must be submitted to the IAU in September of the previous year, and there is no time to apply for 2010. Moreover, the last symposium organized by the Commission, S 249, was in 2007, and it might be difficult to have another symposium after a short period of time, especially if held in China where S 249 was held. Ferraz Mello said that the next symposium should preferably not be held during the next GA in Beijing, in 2012, due to the difficulties and big expenses for traveling to China. Mikkola proposed to organize such symposium in Finland, in 2012, on the occasion of the 100th anniversary of the work on regularization methods in the Three Body Problem by Karl Sundman (*Mémoire sur le problème des trois corps*, Sundman 1912). This proposal might be a good option, but to try to organize a symposium the same year as a GA may be a problem because only 3 symposia can be organized that year outside the GA. In any case, Mikkola should send a letter of intention to the Commission OC.

(b) To write the Terms of Reference in order to justify the continuity of the Commission to the IAU Division I. Ferraz Mello offered to send the manuscript of a similar document written some years ago.

(c) To improve the web page of the Commission, since the present one is largely outdated. It is desirable to have a more dynamic web page, including some items on top of the already existing information like highlighted publications in the area. It is also desirable to implement a system for updating the members list periodically and a member search engine. The new web page is currently under construction and its latest version is at <http://staff.on.br/iaucom7>.

(d) To search for and to propose hot topics to be included in the next Triennial Report.

(e) To prepare for the elections before the next GA.

(f) To propose how the Commission may contribute to improve each area of the field.

8. Closing remarks

After this, and having no more issues to discuss, president Burns closed the session at 11:55 am.

Joseph A. Burns
President of the Commission

9. Appendix

Celestial Mechanics and Dynamical Astronomy (CMDA)

Report for the period 2005–2008

CMDA has been published since 2007 with a new cover showing an artistic representation of a low-thrust trajectory between the Earth and the Moon, including an halo orbit around L2 and using a lunar gravity assist to direct the flight towards a distant target. This new cover reminds readers that mission analysis and other aspects of astrodynamics, such as determination, prediction, computation and selection of orbits are among the aims of CMDA, as defined in the first issue of the journal, in 1969. The number of published papers on astrodynamics is increasing and a large special issue is scheduled for publication later in 2009.

The impact factor calculated by the Institute for Scientific Information and published in the Journal Citation Reports (JCR) reached 1.56 in 2008, largely compensating for the low of 0.844 in 2007. The JCR impact factor measures the number of citations, in a given year, of papers published in a journal in the 2 previous calendar years and is impaired by large statistical fluctuations. The new more robust 5-yr factor, published in JCR since 2007, reached 1.27 in 2008. The analysis of previous years shows that the 5-yr impact factor of CMDA was close to or above 1.0 since 2004 (q.v. <http://www.astro.iag.usp.br/~sylvio/celmech.html>).

Recently about 50 percent of the submitted papers are being published. The average times between the submission of one (accepted) paper and the final decision is being kept within 6 months. Some extremely long times are still recorded, but they generally correspond to papers demanding time-consuming, thorough revisions.

The transients from the merger of Kluwer and Springer are over and the journal is being published rigorously according to the schedule. Because of continuing efforts, CMDA is currently reaching, through electronic and hardcopy subscriptions, more than 5,000 institutions. A few recent papers are being offered by Springer on a free-access basis, but it is important that authors use the rights allowed by current copyright rules to make easily available e-preprints of their articles. The old issues (before 1997) are available for free download through the NASA-ADS site, but Springer will not extend this allowance to more recent issues.

Sylvio Ferraz Mello
Editor-in-Chief

References

Sundman, K. F. 1912, *Acta Mathematica* 36, 105