

Activity Report of the Commission on Physics of Minerals (CPM), 2022–2026

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1. Introduction

The Commission on the Physics of Minerals (CPM) promotes international collaboration and the exchange of scientific knowledge in the broad field of mineral physics, including the physical and chemical properties of minerals and related materials under conditions relevant to the Earth and planetary interiors. This report summarizes the activities of the Commission during the period from the 23rd General Meeting of the International Mineralogical Association held in Lyon in 2022 to the 24th General Meeting to be held in Nanjing in 2026, highlighting its scientific meetings, publications, organizational developments, and future priorities.

2. Executive Committee and Commission Organization

During the 2022–2026 term, the Commission was led by the following Executive Committee:

- Chair: Paola Comodi (Italy)
- Vice Chair: Jun Tsuchiya (Japan)
- Secretary: Sujoy Ghosh (India)

The Commission continued its activities through four subcommissions (SCs), each covering a major research area in mineral physics. These SCs promoted scientific exchange and supported the organization of international meetings, workshops, and scientific sessions. These subcommissions promoted scientific exchange and supported the organization of international meetings and scientific sessions.

During the 2022–2026 term, the Commission reviewed its membership to maintain broad scientific expertise and improve geographical representation. Several members completed their terms and new members joined the Commission. In particular, following the appointment of Deshenthree Chetty as an IMA Councillor, she stepped down from the Commission and was succeeded by Johan de Villiers, maintaining representation from South Africa. New members, including Li Zhang (China), further strengthened the Commission's geographical diversity and scientific expertise. Despite these efforts, further improvements in geographical and gender diversity remain an important priority for the Commission. In particular, broader representation

from Africa, South America, and Oceania, as well as increased participation of women and early-career researchers, will continue to be encouraged in future membership renewals.

Table 1: Members of the Commission on the Physics of Minerals during the 2022–2026 term.

Name	Position	Affiliation	Country	SC
Paola Comodi	Chair	University of Perugia	Italy	(1)
Jun Tsuchiya	Vice Chair	The University of Osaka	Japan	(4)
Sujoy Ghosh	Secretary	Indian Institute of Technology Kharagpur	India	(1)
Georg Amthauer		University of Salzburg	Austria	(2)
Jay D. Bass		University of Illinois	USA	(1)
Harald Behrens		Leibniz University Hannover	Germany	(3)
Hervé Cardon		ENS de Lyon	France	(2)
Francesco Di Benedetto		University of Ferrara	Italy	(2)
Leonid Dubrovinsky		Bayerisches Geoinstitut	Germany	(2)
Grant Henderson		University of Toronto	Canada	(3)
Toru Inoue		Hiroshima University	Japan	(1)
Bijaya B. Karki		Louisiana State University	USA	(4)
Sung Keun Lee		Seoul National University	Republic of Korea	(3)
Roberto Moretti		Institut de Physique du Globe de Paris	France	(3)
Daniel R. Neuville		CNRS–Institut de Physique du Globe de Paris	France	(3)
Hiroaki Ohfuji	IMA Secretary	The University of Tokyo	Japan	(2)
Eiji Ohtani	IMA President	Tohoku University	Japan	(1)
Mauro Prencipe		University of Turin	Italy	(4)
Bruno Reynard		CNRS, ENS de Lyon	France	(1)
Johan de Villiers		University of Pretoria	South Africa	(2)
Li Zhang		Center for High Pressure Science and Technology Advanced Research	China	(2)

SC: (1) Earth Deep Interior; (2) Spectroscopy, Diffraction, and New Instrumentation in Mineral Physics; (3) Glass and Melt Studies and Their Applications to Geosciences and Industry; and (4) Theoretical and Computational Mineral Physics.

Following the 2024 online Business Meeting, the Commission reorganized the four subcommissions. Proposed chairs were identified for three subcommissions, while a successor to the outgoing chair of the Earth Deep Interior subcommission remained to be appointed (Table 2).

Table 2: CPM subcommissions reorganized following the 2024 online Business Meeting.

Subcommission	Proposed Chair	Other Members
Earth Deep Interior	To be appointed ^a	Paola Comodi, Sujoy Ghosh, Toru Inoue, Bruno Reynard, Jay D. Bass, Eiji Ohtani, and Li Zhang
Spectroscopy, Diffraction, and New Instrumentation in Mineral Physics	Francesco Di Benedetto	Leonid Dubrovinsky, Georg Amthauer, Hiroaki Ohfuji, Hervé Cardon, and Johan de Villiers
Glass and Melt Studies and Their Applications to Geosciences and Industry	Sung Keun Lee	Daniel R. Neuville, Grant Henderson, Roberto Moretti, and Harald Behrens
Theoretical and Computational Mineral Physics	Jun Tsuchiya	Mauro Prencipe and Bijaya B. Karki

^a Eiji Ohtani, who was serving as chair at the time of the 2024 Business Meeting, expressed his intention to step down; a successor was therefore to be appointed.

3. Scientific Meetings and Sessions

A major activity of the Commission on the Physics of Minerals (CPM) is to promote scientific exchange through the organization and support of scientific sessions at international conferences in mineralogy, geoscience, and high-pressure research. During the 2022–2026 term, CPM actively supported scientific meetings covering a broad range of topics, including deep Earth processes, mineral spectroscopy, glass and melt science, planetary interiors, and computational mineral physics.

Particular emphasis was placed on increasing the visibility of CPM by supporting scientific sessions at recurring international meetings, including the Japan Geoscience Union (JpGU), the European Mineralogical Conference (EMC), the European Mineralogical Physics Group (EMPG) meeting, the International Mineralogical Association (IMA) General Meetings, and the African Light Source (AfLS) Conference.

Major meetings organized or supported by CPM members are summarized in Table 3.

Table 3: Major scientific meetings and conferences organized or supported by CPM members during the 2022–2026 term.

Year	Meeting	Location
2022	JpGU 2022	Chiba, Japan
	23rd IMA General Meeting	Lyon, France
	AfLS4–2022 and AfPS–2022	Johannesburg, South Africa & Virtual
2023	JpGU 2023	Chiba, Japan
	EMPG XVIII	Milan, Italy
	AfLS–2023 and AfPS–2023	Johannesburg, South Africa & Virtual
2024	JpGU 2024	Chiba, Japan
	European Mineralogical Conference	Dublin, Ireland
	AfLS–2024 and AfPS–2024	Online
2025	JpGU 2025	Chiba, Japan
	EMPG XIX	Orléans, France
	AfLS–2025 and AfPS–2025	Online
2026	JpGU–AGU Joint Meeting	Chiba, Japan
	24th IMA General Meeting	Nanjing, China

At the annual JpGU meetings, CPM consistently supported sessions related to deep Earth sciences, mass and energy transport in the crust and mantle, and planetary cores.

For the 24th IMA General Meeting in Nanjing (2026), CPM members coordinated four scientific sessions: (i) Mineral Physics: a Key to Understanding the Interior of Earth and Planets, (ii) Computational and Theoretical Studies of Earth and Planetary Materials, (iii) Fluids and Melts in the Mantle: Character, Generation, Transport, and Consequences, and (iv) Earth and Planetary Materials Informatics.

These activities strengthened scientific interactions among researchers from different regions and disciplines and substantially enhanced the visibility of CPM within the international mineral physics community. The recurring organization of scientific sessions also promoted collaboration among the four SCs and provided valuable opportunities for the participation of early-career researchers.

4. Publications and Communication

Effective communication among Commission members and with the broader mineral physics community has been an important objective of CPM during the 2022–2026 term. In addition to publishing official reports, the Commission expanded its communication activities through its website, mailing list, and regular online exchanges.

One major achievement during the present term was the publication of **the CPM Activity**

Report covering the 2018–2022 period in Physics and Chemistry of Minerals (Comodi et al. 2024)[1]. The report provides a permanent archival record of the scientific, organizational, and outreach activities of the Commission and establishes a foundation for future regular activity reports.

A dedicated **CPM webpage** has been established within the renewed IMA website [2]. Although the basic framework is now in place, further development of the webpage, including the publication of activity reports, announcements, and other Commission information, remains an important priority for the next term.

Communication among Commission members was strengthened through the **CPM mailing list**, which was actively used to distribute announcements on scientific meetings, sponsored sessions, Commission activities, and organizational matters. In particular, information on session proposals for the 24th IMA General Meeting (Nanjing, 2026) was shared among Commission members to facilitate coordination and avoid duplication of scientific sessions while promoting active participation by the CPM community.

To further enhance communication within the Commission, an online CPM Business Meeting was held in October 2024. During the meeting, members discussed the reorganization of the four subcommissions, future Commission activities, the development of a renewed CPM webpage, and preparations for IMA 2026. These online discussions have provided an efficient mechanism for maintaining regular communication between the four-year IMA General Meetings. Plans for launching a **CPM Online Lecture Series** were also initiated to provide educational resources and enhance outreach activities.

5. Commission Development and Governance

During the 2022–2026 term, CPM devoted considerable effort to strengthening its organizational structure and governance in order to support sustainable scientific activities and improve international representation.

Following approval by the IMA Council, the current Executive Committee, consisting of Chair Paola Comodi, Vice Chair Jun Tsuchiya, and Secretary Sujoy Ghosh, officially assumed responsibility for the Commission. Regular communication among the Executive Committee enabled more active coordination of CPM activities between IMA General Meetings.

A major organizational initiative during the present term was the reorganization of the four CPM subcommissions. Proposed chairs were identified for three subcommissions, while the Earth Deep Interior subcommission remained under interim coordination pending the appointment of a new chair. The revised subcommission structure is expected to facilitate scientific planning and encourage broader participation by Commission members.

The Commission also reviewed its membership to improve both scientific expertise and geographical representation. New members joined the Commission, including Li Zhang (China) and Johan de Villiers (South Africa), strengthening representation from regions that had previously been underrepresented. Nevertheless, further efforts are still needed to improve geographical balance, particularly through increased representation from South America, as well as greater gender diversity and participation by early-career researchers.

To enhance communication and member engagement, an online CPM Business Meeting

was held in October 2024. The meeting provided an opportunity to discuss the reorganization of the subcommissions, preparations for IMA 2026, development of the CPM webpage, and future Commission activities. The successful use of online meetings demonstrated their value for maintaining continuity between the four-year IMA General Meetings.

Preparations for the 24th IMA General Meeting in Nanjing included the coordination of scientific session proposals and planning for the transition of **the Commission leadership following the 2026 General Meeting**. Together, these activities helped ensure continuity of CPM while laying the foundation for the next four-year term.

6. Future Activities and Priorities for 2026–2030

Looking ahead to the 2026–2030 term, CPM will continue to strengthen its role as an international forum for mineral physics by promoting scientific collaboration, improving communication, and enhancing the visibility of the Commission within the Earth and planetary science communities.

One immediate priority will be to establish regular online CPM meetings between IMA General Meetings. These meetings will facilitate communication among Commission members, support the activities of the subcommittees, and provide opportunities to discuss future scientific initiatives and organizational matters.

Another important objective will be to further develop the CPM webpage within the IMA website. The webpage will serve as a central platform for disseminating information on Commission activities, scientific meetings, reports, educational resources, and outreach initiatives.

To promote education and knowledge exchange, CPM plans to establish an online lecture series featuring leading researchers in mineral physics. This initiative is expected to provide valuable educational resources, particularly for students and early-career researchers, while increasing the visibility of the Commission.

The four CPM subcommittees will be encouraged to take more active roles in proposing and organizing scientific sessions, workshops, and other international activities within their respective research areas. Close collaboration with other IMA commissions and related international organizations will also be promoted. In particular, CPM looks forward to supporting future editions of the EMU International School on Mineral Spectroscopy and related educational activities.

The Commission also intends to continue publishing its activity reports in *Physics and Chemistry of Minerals*, following the precedent established by Ohtani (2014) and Comodi et al. (2024) [1, 3]. Regular publication of these reports will provide a permanent record of CPM activities and promote the visibility of mineral physics within the international scientific community.

Finally, the Commission will continue its efforts to broaden participation by improving geographical and gender diversity and by creating more opportunities for early-career researchers to contribute to Commission activities. Strengthening international collaboration across different regions and disciplines will remain one of the Commission’s highest priorities during the next term.

Preparations have also been made for a smooth transition of the Commission leadership following the 24th IMA General Meeting in Nanjing. **The proposed Executive Committee**

for the 2026–2030 term consists of Jun Tsuchiya (Chair), Francesco Di Benedetto (Vice Chair), and Sung Keun Lee (Secretary). In addition, a new position of Past Chair is proposed, to be served by Paola Comodi, in order to provide continuity and facilitate the transfer of experience to the new Executive Committee.

The proposed transition reflects the Commission’s commitment to maintaining continuity while encouraging leadership renewal and broader international participation. By pursuing these activities, CPM aims to strengthen its role as a vibrant, inclusive, and internationally recognized community for mineral physics, fostering scientific excellence, education, and collaboration across the Earth and planetary sciences. The Commission welcomes the active participation of researchers from all regions and career stages who wish to contribute to these goals.

Acknowledgements

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