CONFERENCE SUPPORT PROGRAM

On Modern Mathematical Tools in Mechanics 2025, Cameroon

Conference Organizers:
Prof. Louis Aimé FONO, University of Douala, Cameroon
Prof. Dirk LANGEMANN, Technical University of Braunschweig, Germany
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CONTEXT

The mathematical community in Cameroon is showing growing interest in applied mathematics, especially in mechanics and computational sciences. However, challenges remain in accessing advanced training, modern tools, and international collaboration. This conference aimed to address these gaps by offering high-level training, promoting collaboration between local and international researchers, and strengthening capacity in scientific computing, modeling, and simulation.

CDC SUPPORTED ACTIVITY

The grant supported a CIMPA School (international scientific conference and training program) held from 08–19 September 2025 at the University of Douala, Cameroon. It included a series of lectures, courses, workshops, and panel discussions, with participants ranging from Master's and PhD students to researchers, academics, and professionals in mechanics and engineering, fostering both local (University of Douala, ASTA) and international collaboration (Germany, France, CIMPA network).

IMPACT

The conference played an important role in enhancing the academic landscape by significantly contributing to the training of young researchers and graduate students. It strengthened the skills and deepened the knowledge of African scholars in areas such as machine learning, numerical methods, ordinary and partial differential equations, scientific computing, and computational mechanics. The event also increased the capacity of local institutions to deliver high-level scientific training. Furthermore, it helped break the isolation often experienced by young African scholars and students, who frequently have limited opportunities to collaborate and exchange ideas with international colleagues. The two-week seminar provided a platform for interaction with five esteemed German colleagues. Additionally, the conference promoted interdisciplinary collaboration between mathematicians and engineers. It allowed mathematicians to gain a better understanding of the practical applications of theoretical concepts, while participants from the Engineering Sciences school benefited from presentations on the distinctions between various numerical methods for solving equations. This initiative also laid the groundwork for establishing new academic and research partnerships between Germany and Cameroon, which are currently ongoing.

OUTCOMES AND ACHIEVEMENTS

- 28 participants:
  - 22 students from Cameroon
  - 5 students from other African countries
  - 1 African student from Norway
  - 11 young lecturers from public universities in Cameroon trained or supervised
- Successfully delivered:
  - 5 courses led by 5 German lecturers and 1 local lecturer
  - 3 talks by 3 local invited lecturers
  - 9 student presentations
- Initiation of new ongoing research collaboration
- Strengthened international academic network between Germany and Cameroon
- Increased awareness of modern tools in mechanics

REFLECTIONS

This CIMPA school played a key role in advancing mathematical capacity in Cameroon by exposing participants to modern tools and global research practices. It fostered collaboration, inspired young researchers, and contributed to the long-term development of applied mathematics and scientific innovation in the region. The IMU funding facilitated the active participation in this school. 80% of the funds covered their accommodation for two weeks, and 20% covered the travel expenses for local participants outside of Douala (round-trip transportation from their university to the University of Douala). We encourage additional funding for organizing scientific events in Africa, featuring both foreign and African speakers, particularly in areas where scientifically active scholars lack international connections.

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