



Formal Methods Europe
Minutes of the 80th meeting
Held online
13 December 2024
www.fmeurope.org

Present at the meeting were:

- Ana Cavalcanti (Chair) [U. York]
- Simon Bliudze [INRIA]
- Gustavo Carvalho [U. Federal de Pernambuco]
- John Cooke [Loughborough U.]
- Agostino Cortesi [U. Ca' Foscari Venezia]
- Emanuele D'Ossualdo [U. Konstanz]
- Lars-Henrik Eriksson (Secretary) [Uppsala U.]
- Alessandro Fantechi [U. Firenze]
- Carlo A. Furia [U. della Svizzera italiana]
- Stefania Gnesi [CNR-ISTI]
- Arnd Hartmanns [U. Twente]
- Klaus Havelund [Jet Propulsion Laboratory]
- Einar Broch Johnsen [U. Oslo]
- Cliff Jones [Newcastle U.]
- Jeroen Keiren [Eindhoven U. of Technology]
- Luigia Petre [Åbo Akademi]
- Matteo Pradella [Politecnico di Milano]
- Violet Ka I Pun [Western Norway U. of Applied Sciences]
- Pedro Ribeiro [U. of York]
- Elvinia Riccobene [U. Milano]
- Matteo Rossi [Politecnico di Milano]
- Pierre-Yves Schobbens [U. de Namur]
- Laura Semini [U. of Pisa]
- Volker Stolz [Western Norway U. of Applied Sciences]
- Maurice ter Beek [CNR-ISTI]
- Emilio Tuosto [Gran Sasso Science Institute]

1 Welcome and agree upon agenda

Ana Cavalcanti welcomed the members present. The agenda was agreed upon.

2 Minutes of the previous meeting

The minutes of the Milan meeting were approved.

3 Plans for 2025

Ana Cavalcanti presented the plans of the Board for 2025 (attached to the minutes). The meeting approved of the plans.

4 ProTea-FM, a long-term activity to define guidelines for teaching FM to Computer Science students

Luigia Petre presented the activity (presentation attached to the minutes). The name is still tentative.

5 Budget for 2025

In the treasurer's absence, Lars-Henrik Eriksson presented the budget proposal for 2025 (attached to the minutes). The meeting approved of the budget *nem com*. The approval of the budget item for the ProTea-FM project was subject to the board's approval of a forthcoming detailed project budget from the teaching committee.

6 Report on FM'24

Matteo Rossi reported on FM'24. The event was a success with over 300 registrations in total. Each day had between 93 and 228 attendants with an average of about 200. There were 5 colocated conferences, 5 colocated workshops and several tracks. The main track had 168

submissions of which 44 (26%) were accepted. Submissions and acceptance figures for the embedded systems track were 10 and 6, for the industry day 17 and 6 and for the tutorials 14 and 10. The Journal First track had 5 papers.

The proceedings amounted to 1200 pages in 2 volumes. The contribution of FME to the open source fees was €10.050 – more than budgeted because of the larger than expected number of papers but then incomes were also higher. In the end, FME made a surplus of €5,800 (€1.800 more than budgeted).

7 Status report on FM'26

Maurice ter Beek reported on the progress on FM'26, which will be held on May 18-22 in Tokyo. The venue is Hitotsubashi Hall, located in the center of the city close to the imperial palace and the main railway station.

TAP will be a track of the symposium and ABZ will be a colocated event. PC chairs, GC chair. Expect the CfP and more information on the web in the first quarter of 2025.

8 FormaliSE

Stefania Gnesi reported on the current status of FormaliSE 2025. There were 72 abstract and 47 full paper submissions. Reviews are ongoing with decisions to be made in January. The intention is to ask for a CORE ranking at the next evaluation round in 2026.

Klaus Havelund commented that CORE has taken the scientific community hostage. A lot of work has to be put in by conference organisers to get a (revised) rating. It also affects the choice of organisers and PC members as choices of junior people will put the conference at a disadvantage. The FME Board shares these concerns.

Maurice ter Beek commented that FMICS (like NFM, as mentioned by Klaus) has decided to not care so much about CORE. NFM and FMICS serve specific audiences, which involves PC members from Industry. The CORE ranking has an increasing influence also in Italy, as witnessed by the recent denomination as ICORE (International CORE Conference Rankings) managed by a committee of representatives of CORE (Computing Research and Education Association of Australasia), GII (Group of Italian Professors of Computer Engineering), GRIN (Group of Italian Professors of Computer Science) and SCIE (Spanish Computer-Science Society).

9 Committee activities

Book Review Committee: Matteo Rossi reported on committee activities. One review was out a few weeks ago. Matteo contacted FACJ too see if there is interest in publishing the review. Some more reviews will be launched in the coming weeks.

Communications Committee: Einar Broch Johnsen reported on committee activities. They are presently looking at setting up a common web site for all FM Symposia. Meeting once a month.

Industry Committee: Jeroen Keiren reported on committee activities. The InFM seminar series will continue in 2025. The committee needs support for advertising. They plan to record at least one video on how to do tool demonstrations. They also plan to integrate their web page with the FME web site.

Teaching Committee: Luigia Petre reported on committee activities. The FMTea tutorial series continues. An FMTea workshop proposal is planned to be submitted to FM'26. The coming issue of FACJ includes a special section with papers on Computer Science Education, edited by Luigia Petre and Ana Cavalcanti.

10 Date and place of next meeting

The next meeting is planned for late March or early April of 2025, at BCS/FACS in London in conjunction with the annual FME-BCS/FACS talk.

11 Advertising for FM'27

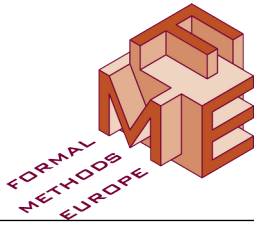
Maurice ter Beek reported that the FM Symposia are planned to go annual starting in autumn 2027. This means we will need more locations in the pipeline for holding the Symposia. If you have any interest in hosting an FM Symposium in the future, please contact the FME board. (Or convince someone else to.) Locations are not limited to Europe! Following the tradition of having a World Congress every 10th year, 2029 will be a World Congress.



(Lars-Henrik Eriksson)
FME Secretary



(Ana Cavalcanti)
FME Chair



Priorities

- Success of FM 2026 and FormaliSE 2025
- Continue the discussion of the issues related for Formal Methods Education
- Improve the support for publicity of FM
- Support coordination of conferences in formal methods.

Symposia

The main focus is the successful running of FM2026 and FormaliSE 2025. We will seek to take advantage of a consultation regarding FM2024 to improve the organisation of FM2026.

Responsible: Maurice ter Beek and Ana Cavalcanti/Consultation: Einar Johnsen

Membership

We have achieved a sustainable (modestly increasing) level of membership. We will continue to make sure that the membership reflects the active members of the society. In accordance with the new statutes, we will also cancel the membership of those that we cannot contact.

Responsible: Lars-Henrik Eriksson

Finances and sponsorship

We do not foresee a need to review our policies fundamentally in the coming year. We will discuss with the membership the possibility of inviting special initiatives to use surplus funds.

Responsible: Nico Plat

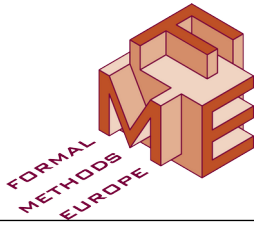
External relations

We will continue our cooperation with BCS-FACS and FMICS. We will continue to support the work of the committees.

Responsible: Ana Cavalcanti

Communications

We will continue to work with the Communications Committee to maintain the vitality of the various means of interaction with the community. Besides the website, which will remain as the FME's primary medium for disseminating its activities, we are using X, LinkedIn, and YouTube. We will continue holding the FME meetings also as webinars. We will revisit the publicity plans for FM and FormaliSE. We will seek to harmonise the publicity of the FM symposia via use of a website that is hosted by FME.



Responsible: Einar Johnsen, Carlo Furia, and Ana Cavalcanti

FME Fellowship and Lucas Award

We will work with the Awards Committee to prepare to confer a Lucas Award during FM2026.

Responsible: Ana Cavalcanti and José Nuno Oliveira

Book reviews

We will continue to work with the Book Review Committee to establish a steady stream of publications.

Responsible: Matteo Rossi

Support for teaching

We will continue to work to ensure the success of FMTea and the tutorial series, and to maintain the course database. There will likely be no FMTea edition in 2025, since we usually associate it with the FM symposium; however, we need to setup a steering committee and reevaluate the periodicity of FMTea in light of FM becoming an yearly event. We will start two new directions as well. First, we plan the development of an FM book series to describe key approaches to formal methods techniques (foundations, tools, applications, education material). Second, we are going to run a worldwide effort, Know-FM, to define the FME guidelines to teaching Formal Methods to Computer Science students. As part of that effort, we will engage with ACM to contribute to their efforts on Computer Science curricula.

Responsible: Luigia Petre

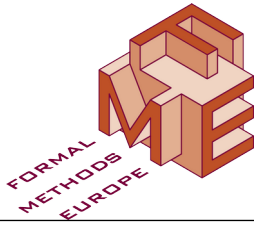
Formal methods in industry

Continue our InFM series of industry talks on the use of Formal Methods in industry; the recordings of these sessions contribute to an archive of talks on the use of Formal Methods in Industry. In addition, we plan to record at least one video of a tool demonstration and investigate whether there is an audience for such videos. We furthermore plan to explore how to better advertise our activities via LinkedIn and possibly other channels, and support other activities that increase the visibility of formal methods.

Responsible: Tim Willemsse

Coordination of events

In cooperation with ETAPS, we will manage a list of representatives of the Steering Committee of conferences in the area of formal methods. We will encourage discussion and harmonisation of important dates for formal methods events. We will also keep the list



Formal Methods Europe

Prof. Ana Cavalcanti

of upcoming events in our homepage up to date and comprehensive to include major events in the area of formal methods.

Responsible: Ana Cavalcanti and Einar Johnsen

ProTeaFM

FME Guidelines for Teaching Formal Methods

Luigia Petre,
Brijesh Dongol
Ana Cavalcanti

13.12.24

Main idea

- Formal Methods → significant visibility in industry recently
 - Safety-critical → railways, automotive, aviation (NASA)
 - Commercial → cloud services (AWS), operating systems, hardware design (Nvidia)
- Current computer science graduates → lack adequate Formal Methods knowledge
 - Educational gap!
- FME's Teaching Committee → aims to address this gap
 - Develop the necessary curriculum for robust Formal Methods education

Challenges

- Misconceptions
 - Perceived mathematical difficulty for learning Formal Methods
 - Software engineers dislike math
- Companies hire Computer Science students before they graduate
 - Bypass of complete formal education
- Graduates
 - Low career growth due to incomplete education
- Companies
 - Lack of specialists

ACM Curriculum Context

- ACM curriculum → 17 Knowledge Areas (KA)
 - The only curricular guidelines with worldwide recognition
 - Reference point for CS curricula worldwide
 - Formal Methods → currently as minor elective topics in
 - Programming Languages KA
 - Software Engineering KA
- Most recent → CS2023

Tipping point?

- Amazon Web Services (AWS)
 - Verify their software
 - Summer 2024 → replaced IAM service with a verified one without anyone noticing
 - Security policies proven correct
 - Result
 - Attracted security-focused customers from other cloud services
- **For the first time**
 - Industry companies not catching up to proof and verification → **left behind!**

Current Actions by FME's Teaching Committee

- FME's Teaching Committee → supports global teaching of Formal Methods
 - [Database](#) of Formal Methods courses taught worldwide
 - [FMTea](#) → Formal Methods Teaching Workshop
 - New teaching techniques
 - [Tutorials Series](#)
 - Existing FM-teaching experience
 - Advocacy for adding FM as a Knowledge Area in ACM's curriculum
 - FAoC Special Issue co-edited

FAoC Special Issue papers

- Does every Computer Scientist need to know Formal Methods?
- Are Formal Methods just for the safety-critical industry?
- Is the current offer of Formal Methods education adequate?
- Summary in December 2024 Inroads issue of the ACM

Proposed Actions

- Create a dedicated "Formal Methods" Knowledge Area
 - Define courses, topics, and knowledge units
- Integrate Formal Methods topics with existing computer science courses
 - Databases, Automata, Programming
- Seek worldwide academic and industry support

ProTeaFM people

- Layers of involvement
 - Core committee → 5-6 people responsible for first draft
 - Luigia Petre, Brijesh Dongol, Amruth Kumar (?), ...
 - Working group → open to anyone interested
 - The bigger the better
 - Advisory Committee
 - People in key roles who can support our work
 - Byron Cook, Rustan Leino, Leslie Lamport, Jeanette Wing, Moshe Vardi, Anyndia Banerjee, ...

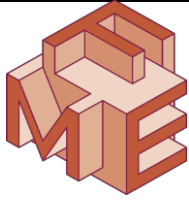
Action Plan Timeline

- Dec 2024
 - Establish ACM collaboration process
- Jan 2025
 - Form core committee for curriculum development
- February-December 2025
 - Create initial content, superpose onto CS2023
- 2025-2027
 - Present work progress biannually at major conferences
 - Get feedback from community
 - Integrate feedback
- 2028
 - Publish research, expand industry collaboration

Key points

- Teaching Formal Methods → critical for both academia and industry
- FME's proposed curriculum
 - will shape the future of computer science education
- Funding support
 - crucial for promoting and refining the proposal through conferences and workshops





FME budget 2025 (proposed to the membership)

No.	Description	Budget 2024				Budget 2025	
		Surplus and deficit		Balance		Surplus and deficit	
		Debit	Credit	Beginning	End	Debit	Credit
[01]	Bank assets			€ 89.222,14	€ 85.922,14		
	Administrative items						
[02]	Interest received on deposit account		€ 1.000,00				€ 1.500,00
[03]	Banking and organisational cost	€ 250,00				€ 300,00	
[04]	IT infrastructure	€ 250,00				€ 300,00	
	Operational items						
[05]	Surplus FM 23 Lubeck			€ 7.200,00			
[06]	Surplus FM 24 Milan		€ 10.000,00				
[07]	Open Access costs FM 24	€ 6.000,00					
[08]	FormaliSE	€ 3.500,00				€ 4.000,00	
[09]	Sponsorships 2023			-€ 2.250,00			
[10]	Sponsorships 2024	€ 3.500,00					
[10a]	Sponsorships 2025					€ 3.500,00	
[10b]	Know-FM					€ 10.000,00	
[11]	Travel costs FME Board	€ 3.500,00				€ 2.500,00	
[12]	Miscellaneous	€ 250,00				€ 250,00	
[13]	Committee funding	€ 1.250,00				€ 1.250,00	
[14]	Notary costs WBTR			-€ 750,00			
[15]	Subtotals	€ 18.500,00	€ 11.000,00	€ 93.422,14	€ 85.922,14	€ 22.100,00	€ 1.500,00
[16]	Profit/loss	-€ 7.500,00		-€ 7.500,00		-€ 20.600,00	
[17]	Totals	€ 11.000,00	€ 11.000,00	€ 85.922,14	€ 85.922,14	€ 1.500,00	€ 1.500,00

Remarks	
[01] Interest received in our savings account will increase, in line with global trends.	[08] FormaliSE will be held in April 2025 in Ottawa, Canada
[03], [04] It is expected there will be a slight increase in these costs compared to the year before.	[10a] Normal amount budgetted for sponsoring in 2025.
[05] The surplus of FM 2023 in Lubeck has been paid in 2024.	[10b] See "Know-FM" proposal put forward by the FME Education group
[06] To be finalised.	[11] For 1-2 physical meetings.
[07] FME will pay 75% of the costs for OA, final amount will be higher than budgeted.	