TWISMA Project Newsletter 3

Foreword

Welcome to the third edition of the TWISMA newsletter.

TWISMA continues to build momentum through close cooperation between ISMA, CERN, and ILM. By connecting expertise, sharing knowledge, and creating new opportunities for collaboration, the project is supporting the development of advanced scintillation materials and innovative calorimeters for high-energy physics.
In this issue, we share recent updates from the project and highlight the activities that continue to strengthen research capacity, scientific networking, and international cooperation within the TWISMA consortium.
This newsletter sums up the project activities carried out during the third year of implementation. We hope you enjoy reading it and find it a useful overview of TWISMA's progress and main activities.

Advisory Board review of project progress

The TWISMA Advisory Board met online on 20 November 2025 to review the project's scientific progress and discuss the next steps in material development and testing. During the meeting, project partners presented updates on YAG:Ce and BSO crystals, fast-timing GAGG:Ce materials, and recent testing activities related to future calorimeter applications.

The discussion focused on codoping strategies, defects in BSO crystals, and the further validation of newly developed materials for next-generation particle physics experiments. The meeting provided valuable expert feedback and helped confirm priorities for the next phase of TWISMA research.

Building project management skills through training

TWISMA continued to strengthen institutional capacities through a series of targeted training activities covering both European project management and scientific communication. The training programme combined practical guidance on the Horizon Europe project life cycle with support for stronger dissemination and communication of research results.

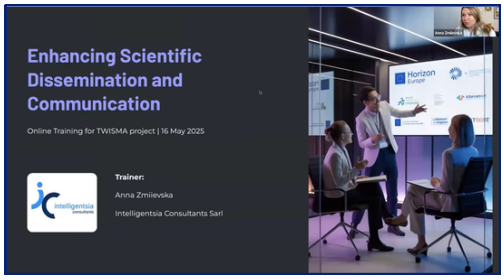
These activities give participants useful skills for future international project participation, project implementation, and more effective visibility of scientific work.

Module 1: Overview of EU Project Management

Module 2: Horizon Europe Project Life Cycle: Initiation Phase & Planning Phase

Module 3: Horizon Europe Project Life Cycle: Execution Phase, Control Phase & Closing Phase

Training for Scientific Dissemination and Communication



Training and teaching resources go online

CERN training session

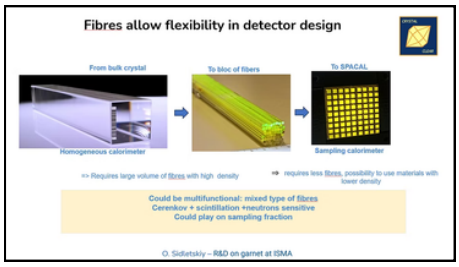
ILM lecture on YouTube

ISMA teaching video

WATCH TRAINING VIDEOS ON YOUTUBE

Research advances towards future calorimeter applications

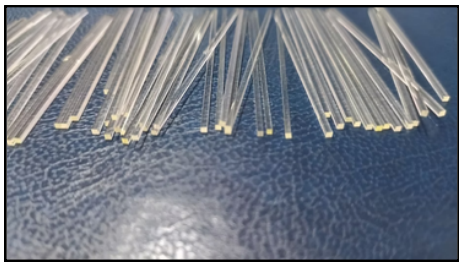
TWISMA research featured in HL-LHC upgrade discussions



TWISMA research was featured in ongoing discussions related to the High-Luminosity LHC upgrade and the development of future calorimeter technologies for the LHCb experiment. At the DRD6 WP3 online meeting held on 21 February 2025, project partners from ILM and ISMA presented progress on GAGG:Ce and YAG:Ce scintillating fibres for particle physics applications.

The meeting highlighted the growing relevance of fast-timing Ce-doped garnets for next-generation detector development.

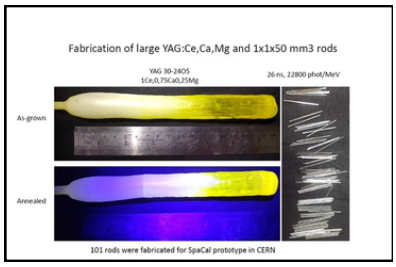
ISMA produces YAG:Ce-based scintillation fibres for CERN tests



A key research milestone was reached with the production of a batch of 101 YAG:Ce,Ca,Mg scintillation fibres by the ISMA team. Crystals up to 200 mm in length were grown using the Czochralski method, and the fabricated fibres are intended for testing in the Spaghetti Calorimeter (SpaCal) prototype at CERN.

This development marks an important step towards validating the material for demanding high-energy physics applications, where radiation tolerance, timing performance, light yield, and production scalability are all critical.

Partners review latest progress in crystal and fibre development



This research direction was further reviewed during the regular TWISMA scientific meeting held online on 24 April 2025. Partners shared updates on bulk garnet and BSO crystals, GAGG:Ce composition optimisation, fibre fabrication, and detector-related testing.

Among the highlights were preparations for SpaCal tests at CERN and new results on radiation tolerance and timing performance of YAG:Ce, GAGG:Ce, BSO, and BGSO scintillators.

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TWISMA

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