Applied Materials Israel
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Call for Proposals on Electron-beam Technologies – eBeam Horizon program

CALL FOR PROPOSALS

Applied Materials Israel invites research proposals (proposals) for innovative research projects on electron-beam (eBeam) technologies relevant for metrology and process control for advanced semiconductor manufacturing.

This Call for Proposals (CFP) describes the framework and guidelines for the preparation, submission, review and research awards.

Proposers' Eligibility

Research proposals may be submitted by a principal investigator (PI) or by a research staff member (RSM) of an academic institute in Israel.

Research Duration and Funding

All research activities are funded at a uniform annual rate of $40K, irrespective of whether the research is conducted by an M.Sc. student, a Ph.D. student, or an RSM. Accordingly, the total funding amounts to $80K for M.Sc. research (two years), $160K for Ph.D. research (four years), and $80K for RSM research (two years).

Research Areas

All proposals must fall within the funding framework and eBeam research areas as defined by this CFP. Proposals outside of this scope will not be considered.

The relevant eBeam technologies and research areas for the proposals are:

Materials and structural characterization

- Materials analysis techniques and their applicability to semiconductors applications
- 3D information, underlayer information
- Scanning electron microscope (SEM) based electrical testing (e.g. voltage contrast)

Material interactions

- Electron-material interaction and modeling
- SEM simulations (high accuracy, high computation efficiency)

High voltage vacuum physics

- High voltage high vacuum phenomena modeling
- High voltage high vacuum materials and methods
- High voltage high performance electronics
- Ultra clean vacuum, organic materials detection methods

Electron optics and imaging

- Large field of view, sub-nm resolution optics and imaging
- Imaging modes and perspectives
- Components design and experimentation (apertures, aberration correctors, monochromators, targets etc.)
- Architectures

Electron detection

- Detector principles, architectures
- Detection materials
- Filtering: energy, angular, spatial, other

Electron sources

- High brightness sources
- Multi-beam sources

Other

- Other relevant eBeam technologies

Proposals Preparation and Submission

Proposals should include the following:

- **Proposed Project Title**.
- **Research Team Details**: Names, email addresses, and departmental and institutional affiliations of the PI and student (the research team) or the RSM.
- **Target Program**: Clear indication of the target program.
- **Proposed Project Summary** (1500 words maximum) including:
    1. A statement on the expected outcome and intellectual merit of the proposed research.
    2. Proposed research outline, key milestones and timeline.
    3. A statement on the potential impact of the proposed research.
- **Overview Section:**
    1. Biographical sketch of the PI or RSM.
    2. Information on collaborators, affiliations and synergistic activities.

3. Current and pending relevant support from semiconductor industry.

The proposal submission is a one-stage process. During the preparation of a proposal, proposers may contact Applied Materials Israel for inquiries.

Proposals must be submitted within the submission deadline as published by Applied Material Israel. Applied Materials Israel reserves its right to terminate or change the submission terms at its sole discretion.

Proposals should be submitted to Applied Materials Israel via the provided link https://www.appliedmaterials.com/il/en/careers/ebeam-horizon-program.html

Evaluation and Funding Decisions

All proposals will be reviewed by Applied Materials Israel and will be evaluated at its own discretion and in accordance with Applied Materials Israel review criteria which include *inter-alia* review of the strengths of the proposed research merit. Applied Materials Israel will exercise internal procedures to determine whether a proposal will be awarded or not. Proposers may be contacted by Applied Material Israel during the evaluation process for further information and deliberation. The decisions of Applied Material Israel will be subject to its own discretion only. Funding decisions may be subject to budget limits.

All proposers will be informed whether their proposal has been selected for award or declined. Proposers will not receive the Applied Materials Israel comments or review panel summary or any other reasoning.

By submitting a proposal, proposers acknowledge and accept that all decisions made by Applied Materials Israel are final and made at its sole discretion, with no obligation to provide justification, feedback, or recourse for applicants.

Post-Award Considerations

Award recipients will be expected to comply with the award conditions and reporting requirements of Applied Materials Israel as will be detailed in the agreements to be entered into between the academic institution in which proposers work\operate and Applied Materials Israel.

Award recipients are responsible for securing necessary rights to pre-existing IP included in the awarded research project.

Award recipients are expected to acknowledge the funding from Applied Materials Israel in any publication, presentation, and public communication related to the awarded research project. Award recipients are deemed to

consent to Applied Materials Israel right to publish the collaboration under an awarded research project.

Material changes in an awarded project (such as, contents, timeline, personnel) must be notified to Applied Materials Israel.

Intellectual Property Consideration

The ownership and exploitation of Intellectual Property Rights arising out of an awarded research project will be detailed in the agreements to be entered into between the academic institution in which proposers work\operate and Applied Materials Israel.

By submitting a proposal, proposers expressly agree to assign any and all right in the outcome of the research project to their rightful owners as prescribed above. Proposers further expressly declare that the participation in the program does not grant them any rights to use third party's intellectual property rights including Applied Material Israel's rights.

Publications

- Proposers must notify Applied Materials Israel on any contemplated publications.
- Applied Materials Israel information cannot be published unless approved in writing and in advance of publication.
- An acknowledgement to Applied Materials on the funding will be included in all publications, unless Applied Materials Israel requests not to include an acknowledgement.

Data Protection and Confidentiality

Please note that the submitted proposals are not considered as confidential and should not include confidential information.

Applied Materials Israel may share relevant information and data in connection with the proposal and award process and during the post-award process. Data are expected to be shared between Applied Materials Israel affiliates to enable an effective evaluation of the proposals and the post-award process.

All non-public data shared by Applied Materials Israel with awarded proposers, including *inter-alia* proprietary technologies, methodologies, or strategic priorities, should be kept in full confidentiality by the proposers.

Program Contacts

For general inquiries about the Applied Materials Israel CFP and funding opportunity, please contact Applied Materials Israel through the link https://www.appliedmaterials.com/il/en/careers/ebeam-horizon-program.html .