

# 2026 10<sup>th</sup> International Conference on RELIABILITY ENGINEERING

Hangzhou, China July 19-21, 2026

## Special Session 21

### Design and Reliability Behavioral Modeling for RF Modules

#### Goal >>>>

With the rapid evolution of high-frequency systems such as 5G/6G communications, radar sensing, and satellite internet constellations, the RF Front-end Module (FEM) has emerged as a critical determinant of system performance, power efficiency, and operational reliability. This special session focuses on the design methodologies and reliability behavioral modeling of core RF components including Power Amplifiers (PAs), Low-Noise Amplifiers (LNAs), filters, and frequency multipliers and their integration within compact modules.

At the device and circuit levels, this session emphasizes nonlinear device modeling, broadband matching network synthesis, high-efficiency PA architectures, and temperature-induced drift characteristics of filters. From a reliability perspective, it systematically addresses junction temperature reliability, interconnect reliability (e.g., wire bond and solder ball fatigue), device-level degradation mechanisms, and circuit-level reliability evolution.

A central theme of this session is reliability behavioral modeling. We solicit contributions on physics-based models, physics-informed data-driven hybrid models, and machine learning-assisted accelerated life prediction methods aimed at characterizing performance degradation and failure mechanisms of RF modules under multiphysics stress conditions.

#### Topics >>>>

Topics of interest include, but are not limited to:

- RF module design
- Nonlinear and parasitic effect modeling
- Multi-stress reliability assessment
- Behavioral-level simulation
- Digital twin frameworks
- .....

#### Chairs >>>>



Qian Lin, Guang'an Institute of Technology, China

#### Publication >>>>

We provide a good opportunity by presenting your updated research knowledge and also by publishing it in the conference proceedings. submitted paper will be peer reviewed by conference committees, and accepted papers will be included into conference proceedings which will be indexed by SCOPUS and Ei compendex.

#### Submission >>>>

1. Full paper (presentation and publication)
  - The paper must be written in English.
  - All submissions will undergo a peer-review process by the conference committee.
  - The paper should be at least FIVE pages including all figures, tables, and references.
  - The paper should be submitted as a PDF document in .pdf format.
  - submitted paper must be unpublished.
  - Accepted papers will be invited for oral presentation or poster presentation and will be included in the conference proceedings.
2. Abstract (presentation only)
  - Abstracts will be considered for presentation (oral/poster) only without publication.
  - The abstract must be written in English.
  - Abstracts should be no more than 300 words and clearly outline the title, purpose, methods, and outcomes of the research or practice being described.
  - All submissions will undergo a peer-review process by the conference committee.

\* Welcome to submit the paper or abstract by Electronic submission system: <https://www.zmmeeting.org/submission/icre2026>  
More details about submission, please visit at: <https://www.icre.org/sub.html>

#### Conference Program >>>>

July 19, 2026 | CONFERENCE + SHORT COURSE  
July 20, 2026 | TECHNICAL EXCELLENCE & TRIBUTE  
July 21, 2026 | INNOVATION & FUTURE OUTLOOK  
July 12-25, 2026 | Young Scholar Symposium + 2026 Beihang International Summer School

#### Conference Venue >>>>

Conference Venue:  
Hangzhou International Innovation Institute of Beihang University  
Address:  
No. 166, Shuanghongqiao Street, Pingyao Town, Yuhang District, Hangzhou City

#### Hangzhou, China

Hangzhou, a renowned Jiangnan city blending millennia of heritage and poetic scenery, boasts three world cultural heritage sites. west Lake ripples with romance; Liangzhu Ruins hold ancient wisdom; the Grand canal carries folk vibes. Timeless song Dynasty elegance meets trendy fun, and delicious local cuisine delights the taste buds. A perfect mix of classic and modern, it awaits visitors from all over the world.

#### Important Dates >>>>

Submission Deadline (Final Call): June 10, 2026  
Notification Deadline: June 25, 2026  
Camera-ready Date: June 30, 2026

Sponsors  <sup>3</sup> Co-sponsors

Technical Support 

 杭州市北京航空航天大学国际创新研究院  
(北京航空航天大学国际创新学院)  
 哈尔滨工业大学  
HARBIN INSTITUTE OF TECHNOLOGY

#### Contact

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web: <http://www.icre.org>

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## 特别专题 21

### 射频模组设计和可靠性行为建模研究

#### 专题目标 >>>>

随着 5G/6G 通信、雷达感知、卫星互联网星座等高频系统的快速发展，射频前端模块（FEM）已成为决定系统性能、能效及运行可靠性的关键因素。本专题聚焦功率放大器（PA）、低噪声放大器（LNA）、滤波器、倍频器等核心射频器件的设计方法与可靠性行为建模，及其在紧凑型模块中的集成技术。在器件与电路层面，本专题重点研究非线性器件建模、宽带匹配网络综合、高效率功率放大器架构以及滤波器的温度漂移特性。从可靠性角度出发，系统探讨结温可靠性、互连可靠性（如键合线与焊球疲劳）、器件级退化机理以及电路级可靠性演化规律。本专题的核心主题为可靠性行为建模。我们征集相关研究成果，包括基于物理的模型、物理先验数据驱动混合模型，以及机器学习辅助的加速寿命预测方法，用于表征多物理场应力条件下射频模块的性能退化与失效机理。

#### 专题主题 >>>>

征稿主题包括但不限于：

- 射频模块设计
- 非线性与寄生效应建模
- 多应力可靠性评估
- 行为级仿真
- 数字孪生框架
- .....

#### 专题主席 >>>>



林倩，广安职业技术学院，中国

#### 会议出版 >>>>

录用文章将被收录至ICRE 2026会议论文集，由IEEE出版，并被EI Compendex 和 Scopus 检索。

#### 投稿方式 >>>>

- 1). 上传文章到电子投稿系统: <https://www.zmeeting.org/submission/icre2026>
- 2). 或发送文章至会议邮箱: [icre\\_conf@outlook.com](mailto:icre_conf@outlook.com)

提示：

1. 全文投稿（含报告与出版）
  - 稿件须以英文撰写。
  - 所有投稿均由会议委员会进行同行评审。
  - 稿件篇幅不少于 5 页，包含所有图表及参考文献。
  - 稿件须以 PDF 格式提交。
  - 投稿稿件须为未发表的原創成果。
  - 录用稿件将受邀进行口头报告或海报展示，并收录至会议论文集。
2. 摘要投稿（仅作报告）
  - 摘要仅用于申请报告资格（口头报告 / 海报展示），不纳入出版范围。
  - 摘要须以英文撰写。
  - 摘要字数不超过 300 词，须清晰阐明所涉研究或实践的标题、研究目的、研究方法及其研究成果。
  - 所有投稿均由会议委员会进行同行评审。
  - 详细信息请见——<https://icre.org/sub.html>

#### 会议日程 >>>>

2026年7月19日- 签到注册  
2026年7月20日- 开幕式+主旨报告+作者报告  
2026年7月21日- 开幕式+主旨报告+作者报告  
2026年7月12-25日- 青年学者论坛 + 2026北航国际暑期学校

#### 会议地址 >>>>

杭州市北京航空航天大学国际创新研究院（北京航空航天大学国际创新学院）  
地址：杭州市余杭区瓶窑镇双红桥街166号

#### 中国杭州

杭州，一座融千年文脉与诗画风光的江南名城，三大世界文化遗产勾勒其独特魅力。西湖碧波漾诗意，良渚遗址藏远古智慧，大运河流淌南北烟火。宋韵风雅浸润红墙古社，新潮玩法解锁别样体验，鲜醇杭帮菜抚慰味蕾。古典与现代交织，漫步街巷皆是惊喜，正静待八方游客前来探寻。

#### 重要日期 >>>>

投稿截止日期（最后一轮征稿）：2026年6月10日  
审稿通知日期：2026年6月25日  
注册截止日期：2026年6月30日

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技术支持 

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 哈尔滨工业大学  
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