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<tr><td>报告题目</td><td colspan="4">Next-Generation Infrared Detection Technology</td></tr>
<tr><td>个人简介</td><td colspan="4">Lianqing Zhu is a Level-Two Professor and Ph.D. advisor at Beijing Information Science and Technology University. He is a National Model Teacher, a recipient of the National Ten Thousand Talents Program, a Beijing Scholar, a Fellow of the China Instrument and Control Society, a member of the Ministry of Education’s Science and Technology Committee and Teaching Guidance Committee, an expert in the field of optoelectronics with the Equipment Development Department, and a member of the 12th, 13th, and 14th National Committee of the Chinese People’s Political Consultative Conference.

He has been engaged in teaching and research in the field of Instrumentation Science and Technology for a long time. He has led more than 20 major and key projects, including the National 863 Program, the National Key R&D Program, the National Natural Science Foundation of China, and pre-research projects for the Equipment Development Department of the Central Military Commission. He has published over 200 papers in journals such as Engineering, IEEE Transactions on Instrumentation and Measurement, Advanced Functional Materials, and Soft Robotics. He has won one Second Prize of the National Science and Technology Progress Award (as first contributor), one First Prize of the Ministry of Education’s Technological Invention Award (as first contributor), and two Second Prizes of the Beijing Science and Technology Progress Award (as first contributor).</td></tr>
<tr><td>报告摘要
Abstract</td><td colspan="4">Abstract
Cooled infrared detection technology is widely used in electro-optical pods, infrared seekers, and high- and low-orbit satellite equipment. The 6.1Å III/V superlattice material system for infrared detectors is considered a next-generation infrared detection material due to its simple wavelength tunability, high material stability, and low Auger recombination and tunneling</td></tr>
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	dark current characteristics. This report begins with the demands of next-generation infrared detectors, analyzing the research challenges and pressing issues of superlattice infrared detectors. It explains the imaging model and realization mechanism for high quantum efficiency in superlattice infrared detection, the impact mechanism of material interface defects on detector dark current and methods for controlling them, epitaxial processes for high-performance type-II superlattice focal plane array detectors covering short-wave, mid-wave, and long-wave bands, fabrication methods for extended short-wave InAs/GaSb/AlSb superlattices, high-temperature mid-wave InAs/InAsSb superlattices, and long-wave strained InAs/GaSb superlattice infrared detectors, as well as optimal band structure design approaches for highly sensitive, low-noise infrared avalanche detectors. The report concludes with a summary of the development of superlattice infrared detection technologies.