



## 格子结构平面光波导interleaver设计中的Cesaro方法

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### Cesaro Means of Fourier Series in Designing Planar Lightwave Circuit-Type Lattice-Form Interleaver

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#### 摘要

根据傅里叶级数的Cesaro方法和格子结构型与双折射型光交错复用器结构参数之间的数学等效关系, 提出一种格子结构平面光波导光交错复用器结构设计的新方法. 只需进行一步简单分析, 解一个简单方程组即可得到满足平坦化要求的所有结构参数. 采用该方法设计25 GHz三级级联格子结构的平面光波导型光交错复用器, 所得信道隔离度比文献结果有明显改善, 可满足DWDM通信对滤波器件的性能要求.

关键词: [光交错复用器](#) [偏振光干涉](#) [平面光波导](#) [傅里叶级数](#) [Cesaro方法](#)

#### Abstract:

Based on the Cesaro means of Fourier series and the mathematical equivalence between structural parameters of the lattice form and the birefringent interleavers, a new method for designing planar lightwave circuit (PLC)-type lattice-form interleavers is proposed. All structural parameters can be obtained with a single step of simple analysis and solution to a set of simple equations. As an example, a 25 GHz 3 lattice cascaded PLC type interleaver is designed. The resulting channel isolation is significantly improved compared to those obtained in the literature, indicating that the method can meet stringent design requirements of the DWDM system.

#### Keywords:

[optical interleaver](#), [polarized light interference](#), [planar lightwave circuit](#), [Fourier series](#), [Cesaro means](#)

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