# Article information:

Applied Sciences | Free Full-Text | Numerical and Experimental Study on Multi-Focal Metallic Fresnel Zone Plates Designed by the Phase Selection Rule via Virtual Point Sources  
<https://hfbic8558edb76bfc41fdscoboubpvcfv06nw6fiac.eds.tju.edu.cn/2076-3417/8/3/449>

# Article summary:

1. A novel design method for multi-focal metallic Fresnel zone plates (MFZPs) is proposed, which exploits the phase selection rule by putting virtual point sources (VPSs) at desired focal points distant to the MFZP plane.

2. The proposed method was used to design and numerically analyze two types of MFZPs - one for a monochromatic multi-focal application and the other for a multi-chromatic mono-focal application.

3. The designed MFZPs were fabricated onto Au-deposited glass substrates and experimentally characterized, demonstrating their feasibilities.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article provides a detailed description of a novel design method for multi-focal metallic Fresnel zone plates (MFZPs). The authors provide evidence from numerical and experimental studies that demonstrate the effectiveness of their proposed method in designing MFZPs with desired properties. However, there are some potential biases in the article that should be noted. For example, the authors do not explore any counterarguments or alternative methods that could be used to design MFZPs with similar properties. Additionally, they do not discuss any possible risks associated with using their proposed method or any potential drawbacks that could arise from its implementation. Furthermore, while they provide evidence from numerical and experimental studies to support their claims, they do not provide any evidence from other sources such as peer-reviewed literature or industry experts to further validate their findings. Finally, while they mention various applications of MFZPs such as laser micromachining, optical trapping, biomedical sensing, confocal collimation, etc., they do not provide any details on how these applications can benefit from using their proposed method or what advantages it offers over existing methods.

# Topics for further research:

* Alternative methods for designing MFZPs
* Potential risks associated with MFZPs
* Drawbacks of MFZPs
* Peer-reviewed literature on MFZPs
* Industry experts on MFZPs
* Advantages of MFZPs over existing methods

# Report location:

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