# Article information:

A high birefringence liquid crystal for lenses with large aperture | Scientific Reports
<https://www.nature.com/articles/s41598-022-18530-z>

# Article summary:

1. Liquid crystals (LCs) with low/medium birefringence are used in display applications, but higher birefringence is needed for faster switching times.

2. Several novel highly birefringent LC mixtures have been proposed, including cyano, fluoro, and isothiocyanato derivatives of biphenyl, terphenyl, quaterphenyl, tolane, phenyl tolane, phenyl ethynyl tolane, and biphenyl tolane.

3. Highly birefringent LCs are also used in metamaterials and metasurfaces, THz and GHz devices, infrared devices and tunable lenses for ophthalmic applications.

# 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 comprehensive overview of the current state of research on high birefringence liquid crystals (LCs). It presents a range of different compounds that have been studied for their potential use in various applications such as displays, metamaterials and metasurfaces, THz and GHz devices and infrared devices. The article also mentions the potential use of these LCs in tunable lenses for ophthalmic applications.

The article is generally reliable and trustworthy as it provides an extensive overview of the current research on high birefringence LCs. It cites relevant sources throughout the text which adds credibility to its claims. The article does not appear to be biased or one-sided as it presents both sides of the argument fairly. Furthermore, it does not contain any promotional content or partiality towards any particular product or company.

However, there are some points that could be further explored in order to make the article more comprehensive. For example, while the article mentions potential risks associated with using high birefringence LCs such as their high viscosity and UV stability issues, it does not provide any detailed information about how these risks can be mitigated or managed effectively. Additionally, while the article discusses various potential applications for these LCs such as displays and tunable lenses for ophthalmic applications, it does not provide any information about how they can be implemented practically in these contexts or what challenges may arise when doing so.

In conclusion, this article provides a comprehensive overview of current research on high birefringence liquid crystals which makes it reliable and trustworthy overall. However there are some points that could be further explored in order to make the article more comprehensive such as providing more information about how potential risks associated with using these LCs can be managed effectively or discussing practical implementation challenges when using them in various contexts such as displays or tunable lenses for ophthalmic applications.

# Topics for further research:

* Mitigating risks associated with high birefringence liquid crystals
* Practical implementation of high birefringence liquid crystals
* Challenges of using high birefringence liquid crystals in displays
* Challenges of using high birefringence liquid crystals in tunable lenses
* UV stability issues of high birefringence liquid crystals
* High viscosity of high birefringence liquid crystals

# Report location:

<https://www.fullpicture.app/item/ee31e08774c7b59b8db074de44a5dad5>