

Bowlic (Liquid Crystals): A Chinese Innovation

1982

Bowlics invented by Lam

Three Types of Liquid Crystals



Rodic
1888
Austria

Natural



Friedrich Reinitzer
(1857–1927)



Discotic
1977
India

Man-made



Sivaramakrishna Chandrasekhar
(1930–2004)



Bowlic
1982
China

Man-made
predicted by theory



Lui Lam

1982	Bowlics proposed by LIN Lei (Lui LAM) at the Institute of Physics, Chinese Academy of Sciences, published in <i>Wuli</i> , ⁷ a publication of Chinese Physical Society.
1985	Bowlic monomers synthesized in Europe (one team in Paris, another is French-Germany-Israel team). ^{9,13}
1986	First review on bowlics given by Lam, as invited talk at the 11 th International Liquid Crystal Conference in Berkeley, USA. ⁸
1988	New type of bowlics synthesized in Tsinghua Univ., Beijing (published in J. Tsinghua Univ.).
1988	Lam proposed bowlic polymers . ⁵
1994	Bowlic monomers and polymers reviewed by Lam in a book. ⁶
1996	The Glenn Brown Award for best PhD thesis was awarded to Bing Xu (at Univ. of Penn at that time, then postdoc at Harvard U.) for his work on bowlics, presented at the 16 th Int. Liq. Cryst. Conf. in Kent, Ohio. (Xu is a student from China.)
1999	Bowlic polymers was synthesized in USA—prompted by the 1994 review article—by a PhD student from China. ¹²
2012	Switchable (ferroelectric) bowlic columns achieved in the lab. (Previously in 1992, a patent has been filed by Harald Bock, Wolfgang Helfrich and Gerd Heppke. ²)
2017	New review published. ¹⁰

The word “bowlic” created by Lam is used by others in the title of their liquid crystal papers (such as Refs. 4 and 11) and is recognized officially¹ by the IUPAC and formally³ in *Handbook of Liquid Crystals*.

The story of bowlics represents an interesting story of innovation in China. Bowlics belong to the domain of new and strategic materials, and have potential application in ultrafast LCDs and other areas.

References

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