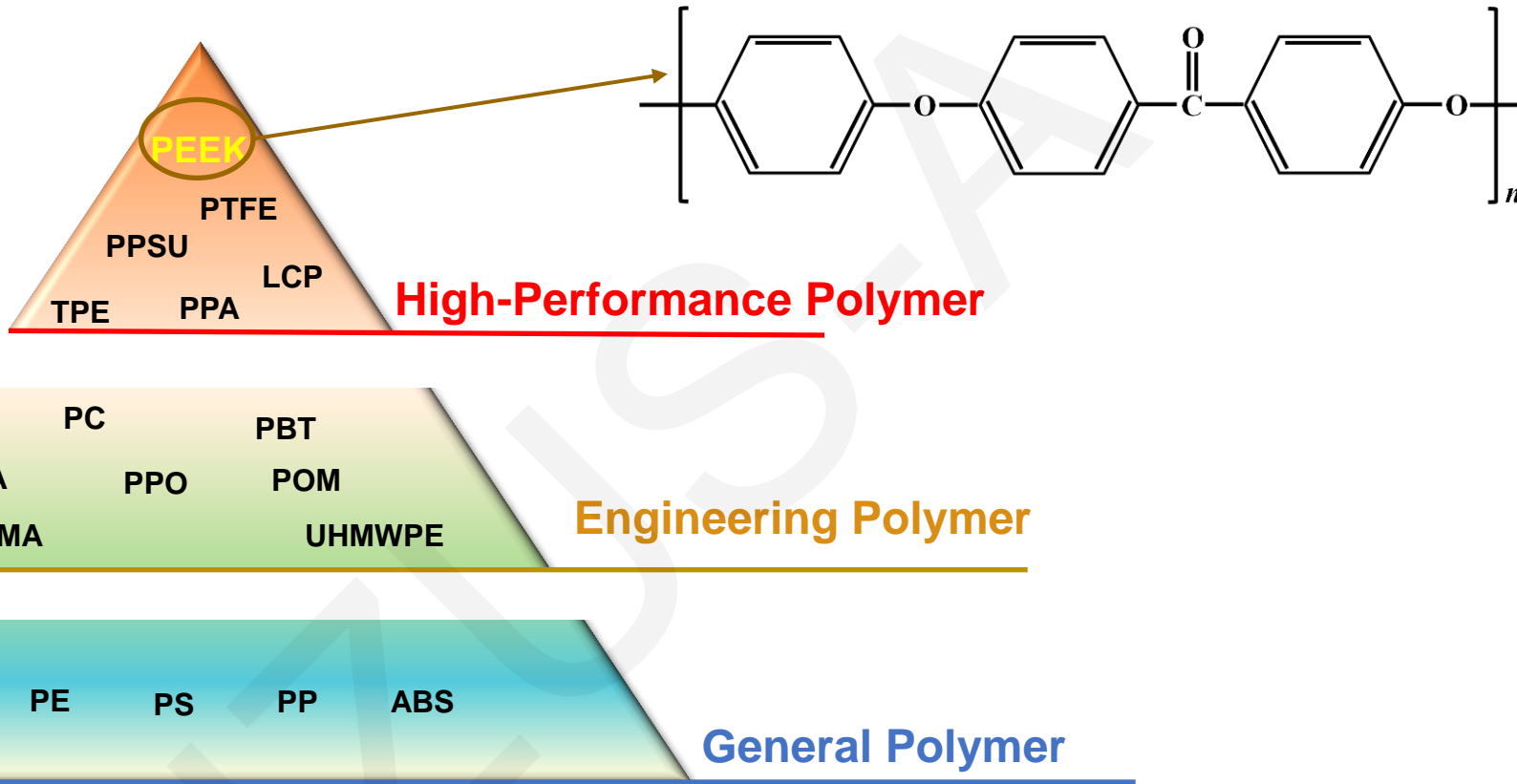


# Molding of polyether ether ketone (PEEK) and its composites: a review

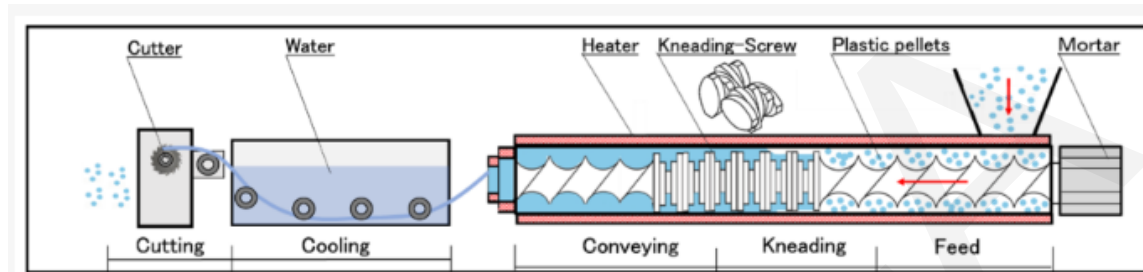
**Zhengchuan GUO, Junjie HE, Ruoxiang GAO, Yifeng PAN,  
Chengqian ZHANG, Jianzhong FU, Peng ZHAO**

Cite this as: Zhengchuan GUO, Junjie HE, Ruoxiang GAO, Yifeng PAN, Chengqian ZHANG, Jianzhong FU, Peng ZHAO, 2024. Molding of polyether ether ketone (PEEK) and its composites: a review. *Journal of Zhejiang University-SCIENCE A (Applied Physics & Engineering)*, 25(10):788-823.  
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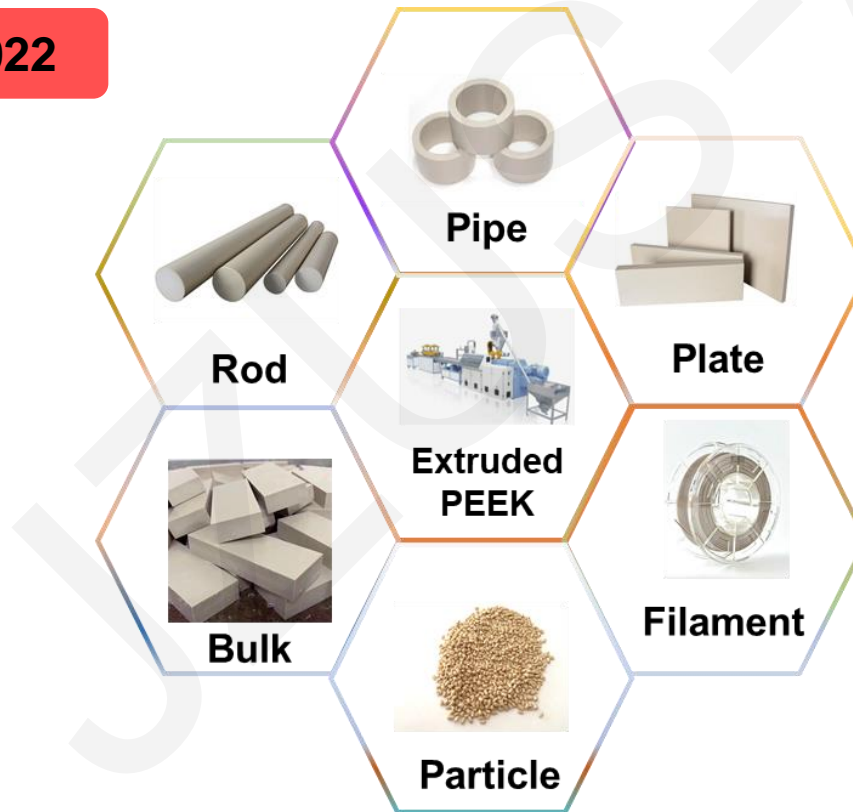
# Thermoplastic performance hierarchy



# Extrusion molding



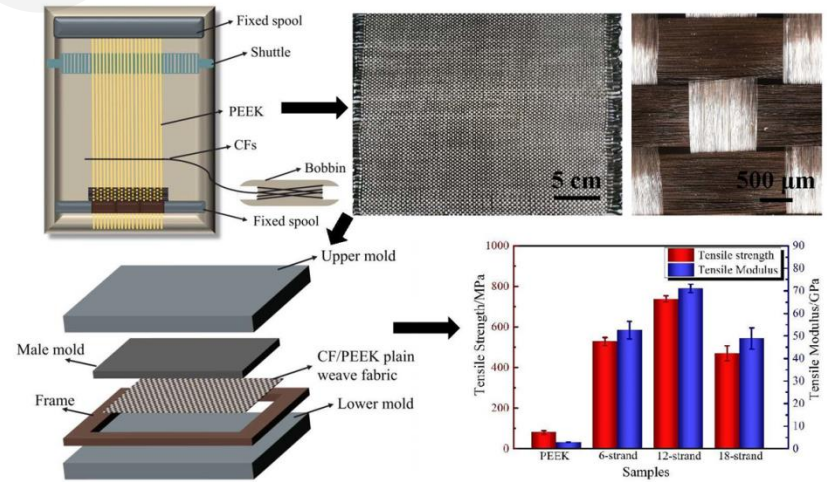
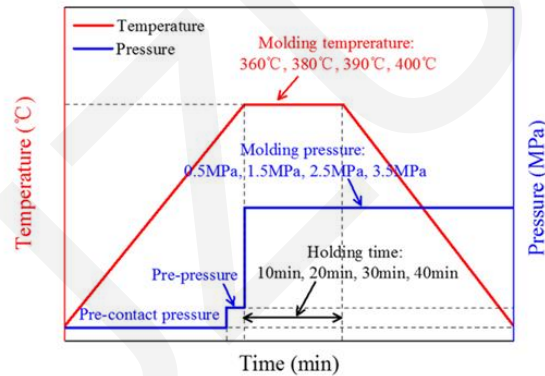
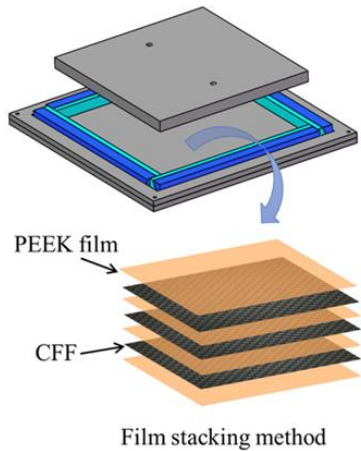
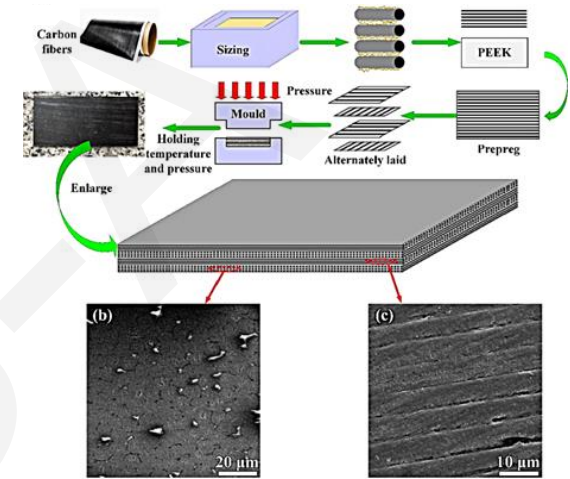
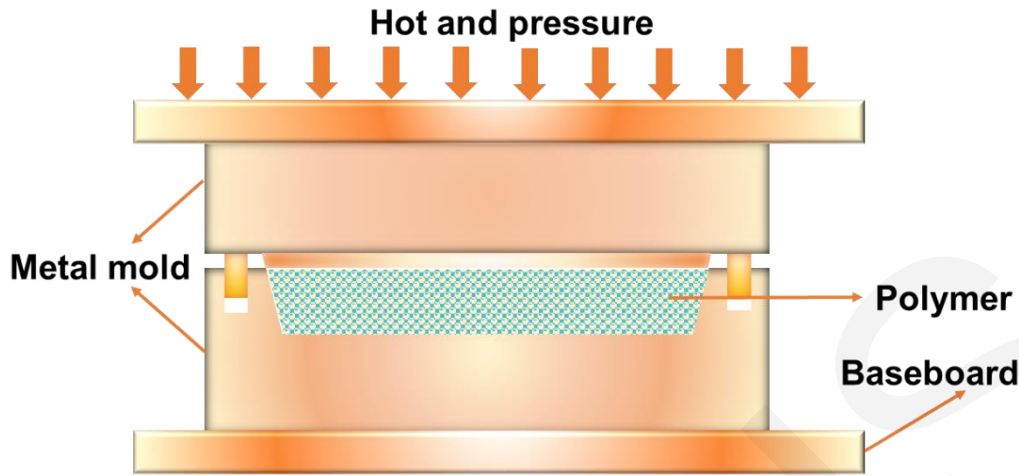
F. Y. Wen et al., 2022



Extrusion molding is the primary production method for **basic profiles** of PEEK **composite materials**.

# Hot compression

J.N. Dai, 2022



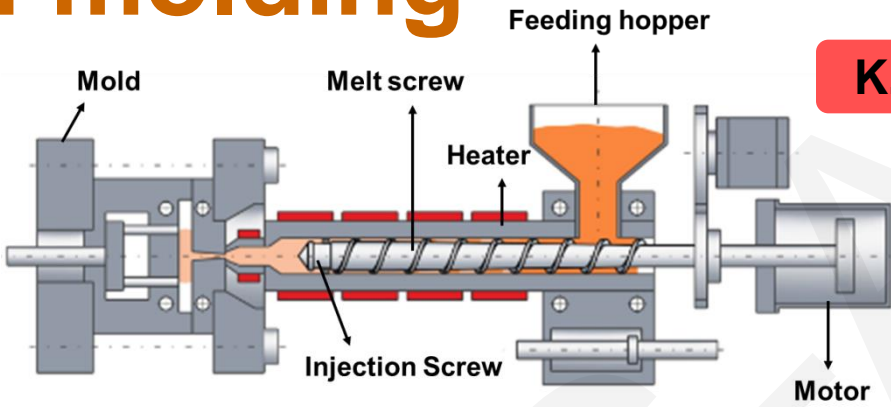
J.Q. Hu et al., 2022

C.R. Lu et al, 2019

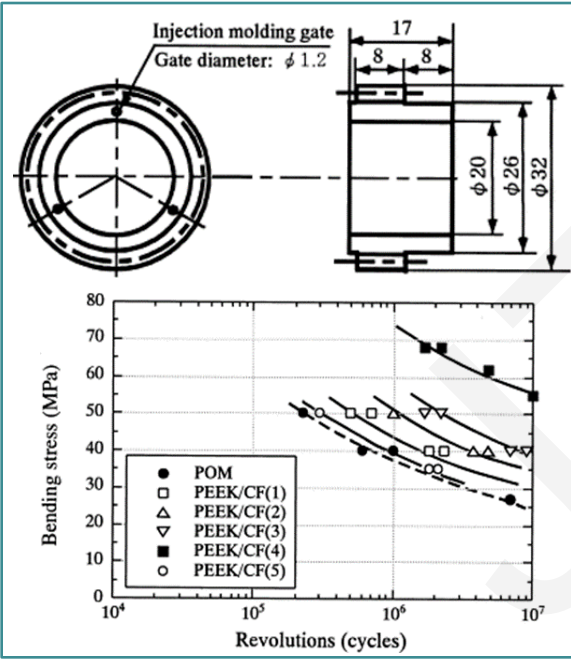
Hot compression molding can produce continuous fiber-reinforced PEEK composite materials **with extremely high mechanical properties.**

# Injection molding

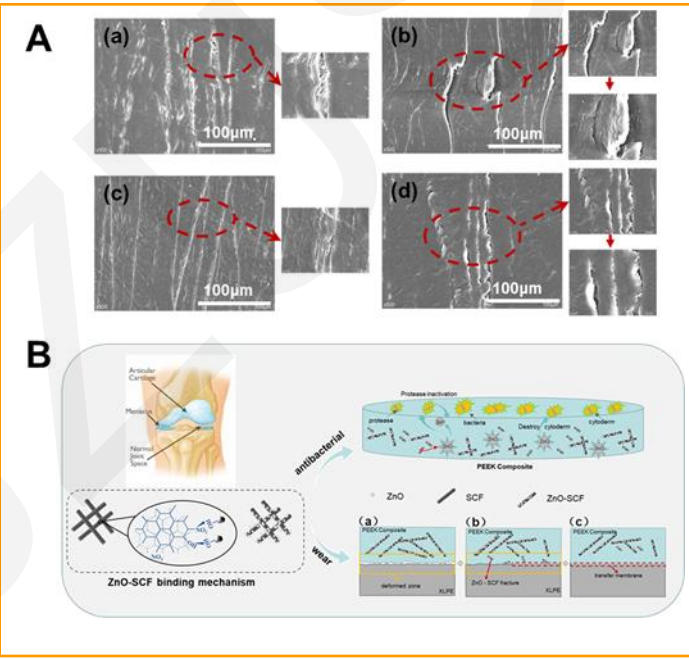
K. Wilczynski et al., 2022



M. Kurokawa et al., 1999



C.N. Feng et al., 2022

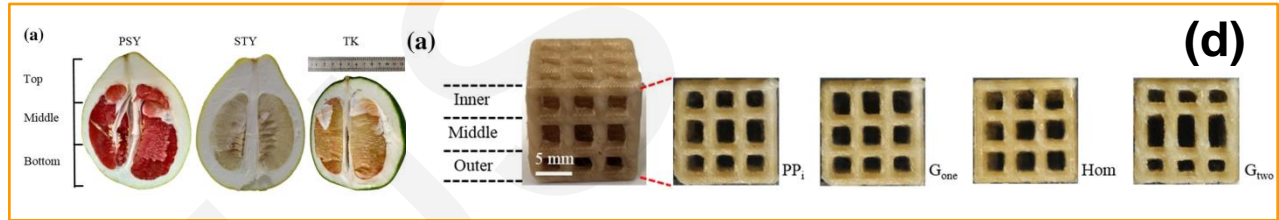
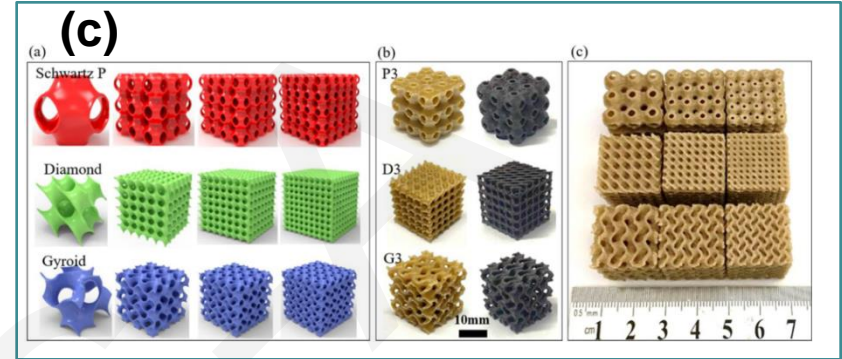
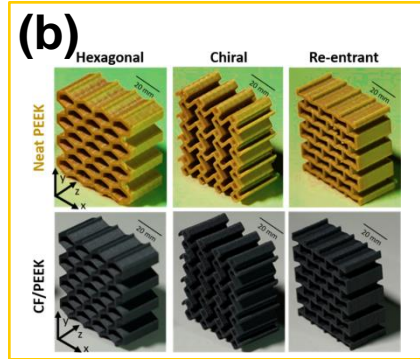
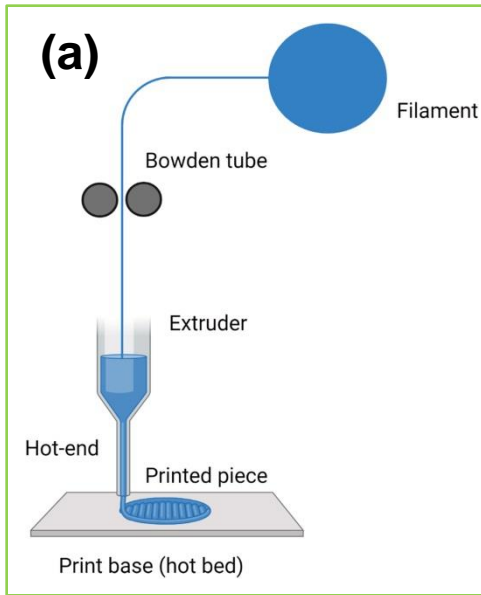


J.H. Yang et al., 2022



Injection molding enables **large-scale production** of high-performance **complex structures** made from PEEK and its composite materials, suitable for various fields.

# 3D Printing



3D printing combined with PEEK composite materials can produce customized metamaterial structures with controllable properties.

(a) A. Cano-Vicent et al., 2021 (b) J.J. Andrew et al., 2021  
 (c) H. Zhang et al., 2023 (d) B.S. Yang et al., 2022