

附件四、技術說明表



新型量子點製備方法

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市場及需求：

本技術係關於一種改質鹵素鈣鈦礦材料前驅物之新型技術，依本方法改質前驅物所合成之鹵素鈣鈦礦材料具有長效結構穩定性及光學表現，適用在發光二極體、太陽能電池、閃爍體等光電產品應用。鹵素鈣鈦礦材料具有高缺陷容忍度、窄半高寬、高光致發光效率等特性。經過本技術對前驅物之改質，所合成之鹵素鈣鈦礦材料的結構穩定性提升，並有效抑制發光穩定性不足之問題。

技術摘要(含成果)：

本技術係一種針對合成鹵素鈣鈦礦材料之前驅物的改質方法，對前驅物進行改質，並使用該新型改質之前驅物合成鹵素鈣鈦礦材料。

優勢：

本技術改質之前驅物所製備之高光效鹵素鈣鈦礦材料，透過本新型技術可提升結構穩定性，改善其發光穩定性，進而擴展鹵素鈣鈦礦材料於工業應用範疇。

競爭產品：

與本技術競爭產品為傳統之鹵素鈣鈦礦前驅物。傳統之前驅物所合成的鹵素鈣鈦礦材料環境穩定性差，使鹵素鈣鈦礦材料的產品發展受阻。

專利現況：

- (1)本技術將申請中華民國專利。
- (2)本技術團隊教授具有研究陶瓷材料二十年以上經驗。
- (3)本研究團隊具有十年以上研究螢光材料經驗。
- (4)本技術團隊教授為本校特聘教授，並獲得多次國科會傑出研究獎。

聯絡方式(請不用填)：

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New preparation process of quantum dots

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Market Needs:

This technology is related to a novel technique of modifying halide perovskite material precursors. The halide perovskite materials synthesized using modified precursors exhibit long-term structural stability and excellent optical performance, making them suitable for applications in optoelectronic products such as light-emitting diodes, solar cells, and scintillators. Halide perovskite materials are special by high defect-tolerance, narrow-emission, and high photoluminescence efficiency. Through this precursor modification technique, the synthesized halide perovskite materials demonstrate enhanced structural stability and effectively address the issue of insufficient luminescence stability.

Our Technology:

This technology involves a method for modifying precursors to synthesize halide perovskite materials using these modified precursors.

Strength:

This technology modifies precursors to produce high-efficiency halide perovskite materials, enhancing structural and luminescence stability, and expanding their industrial applications.

Competing Products:

This technology competes with traditional halide perovskite precursors, which suffer from environmental sensitivity, hindering product development.

Intellectual Properties:

- (1) This technology will be filed as a patent in our country.
- (2) The professor in the research team has studied ceramic materials for more than twenty years.
- (3) The research team has studied phosphors materials for more than ten years.
- (4) The professor in the research team is a distinguished professor at NTU, and has obtained many rewards from NSC.

Contact (do not need to fill out):

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