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## Patent Search

Invention Title	SYRINGE BASED PRINTER FOR PRINTING A THIN FILM OF SOLUTION PROCESSABLE ORGANIC AND/OR INORGANIC MATERIALS AND A THEREOF
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### Abstract:

The present invention relates to a syringe based 3D printing system and the method of operating the printing system. The present invention relates to the printing of thin solution-processable organic and inorganic materials using a low-cost syringe based printer and its application in organic electronics. The printing system comprises X-axis, Y-axis and Z-axis profiles (3,4,11,20), support plates (5), a hand twist level nut (13), a base (17), a stepper motor (6,18,19), a load for piston(9); a print platform (14) passive block (7), power supply (16), a tensioner (8,15) a user interface to input data, a controller (12) and comprises a syringe (10), that prints a thin film of an organic semiconductor of a solute which is a printing ink in a solvent system, from syringe nozzle and the film is in nanometer range of thickness.

**Complete Specification****FIELD OF INVENTION**

The present invention relates to a Syringe based 3D-printer system. Particularly to solution-based 3D-printer. More particularly, the present invention relates to the printing of a patterned thin solution-process able organic and inorganic materials using a low-cost syringe-based printer and its application in organic electronics.

Furthermore the present invention also relates to the method of operating the system and printing of a thin film of organic semiconductors for different applicatio

**BACKGROUND OF INVENTION**

3D printing is a technique that has gained significant attention and commercial interest and has been applied across multiple components, including electronic, opt and mechanical devices. A significant advancement would be the ability for low-cost syringe-based printing functional in organic electronics, beyond the 2D and 3D constraints of traditional micro-fabrication semiconductor processing.

US9082983B1 discloses a thin film transistor having a solution-processed n-type copolymer semiconductor material. A thin-film transistor (TFT) device including, an TFT device having at least one substrate, at least one gate electrode, at least one electrically-insulating dielectric material, at least one drain electrode, at least one s electrode, and at least one n-type solution-process able semiconductor material.

JP2020157760 relates to provide a three-dimensional (3D) additive manufacturing system that operates an extruder to allow a more accurate identification of an arr material on a faceplate. SOLUTION: An additive manufacturing system opens valves in an extruder needed to form a swath and operates an actuator to move the e through a transition region with a state of opening those valves to establish an amount of an extrusion material that is adequate for formation of a

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