Patent Search

Invention Title	NATURAL FIBER COMPOSITES FOR 3D PRINTING APPLICATIONS
Publication Number	48/2023
Publication Date	01/12/2023
Publication Type	INA
Application Number	202341056378
Application Filing Date	23/08/2023
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	MECHANICAL ENGINEERING
Classification (IPC)	B33Y0010000000, B33Y0070000000, B29C0064118000, B29C0064106000, B29C0064209000

Inventor

Name	Address	Country
Dr. Indradeep Kumar	Assistant Professor, Department of Aeronautical Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telangana, India- 500043	India
Manu Kumar Thakur	Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telangana. India 500043	India
Mr.K.Gopalakrishnan	Assistant Professor, Department of Safety and Fire Engineering, Excel Engineering College, NH-544, Salem Main Road, Sankari West, Pallakkapalayam, Komarapalayam, Namakkal-637303, Tamilnadu	India
Dr. S. Krishnakumar	Assistant Professor, Department of Mechanical Engineering, Gnanamani College of Technology, NH-7, A. K. Samuthiram, Pachal, Namakkal-637018, Tamilnadu	India
Dr. V Gopal	Assistant Professor, Department of Mechanical Engineering, KCG College of Technology, OMR, Karapakkam, Chennai-119, Tamilnadu	India
Dr. Siva Bhaskara Rao Devireddy	Associate Professor, Department of Mechanical Engineering, St. Ann's College of Engineering and Technology, Andhra Pradesh 523187	India
B. Vijaya Ramnath	Professor, Department of Mechanical Engineering, Sri Sai Ram Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600044	India

Applicant

Name	Address	Country
Dr. Indradeep Kumar	Assistant Professor, Department of Aeronautical Engineering, Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telangana, India- 500043	India
Manu Kumar Thakur	Institute of Aeronautical Engineering, Dundigal, Hyderabad, Telangana. India 500043	India
Mr.K.Gopalakrishnan	Assistant Professor, Department of Safety and Fire Engineering, Excel Engineering College, NH-544, Salem Main Road, Sankari West, Pallakkapalayam, Komarapalayam, Namakkal-637303, Tamilnadu	India
Dr. S. Krishnakumar	Assistant Professor, Department of Mechanical Engineering, Gnanamani College of Technology, NH-7, A. K. Samuthiram, Pachal, Namakkal-637018, Tamilnadu	India
Dr. V Gopal	Assistant Professor, Department of Mechanical Engineering, KCG College of Technology, OMR, Karapakkam, Chennai-119, Tamilnadu	India
Dr. Siva Bhaskara Rao Devireddy	Associate Professor, Department of Mechanical Engineering, St. Ann's College of Engineering and Technology, Andhra Pradesh 523187	India
B. Vijaya Ramnath	Professor, Department of Mechanical Engineering, Sri Sai Ram Engineering College, Sai Leo Nagar, West Tambaram, Chennai - 600044	India

Abstract:

The invention pertains to a composite filament optimized for 3D printing, combining a polymer matrix with natural fibers, such as jute, hemp, flax, and sisal. These fil uniformly dispersed within the matrix, ensuring consistent material properties and print quality. The integration of natural fibers enhances the mechanical strength c objects while introducing biodegradability, positioning this filament as a sustainable choice in additive manufacturing. The invention also covers methods of 3D printi said filament and the resulting eco-friendly printed objects. Accompanied Drawing [FIGS. 1-2]

Complete Specification

Description:[001] The present invention relates to the domain of materials science and additive manufacturing, more specifically, to natural fiber-reinforced compos that are optimized for 3D printing applications. These composites merge the inherent advantages of natural fibers, including their renewable nature, lightweight pr and environmental benefits, with the flexibility, rapid prototyping, and customizable design capabilities offered by 3D printing technologies. The invention finds its application across a range of industries including automotive, construction, aerospace, consumer goods, and biomedical devices, where sustainable and efficient manufacturing methods are sought.

BACKGROUND OF THE INVENTION

[002] The following description provides the information that may be useful in understanding the present invention. It is not an admission that any of the informati provided herein is prior art or relevant to the presently claimed invention, or that any publication specifically or implicitly referenced is prior art.

[003] Further, the approaches described in this section are approaches that could be pursued, but not necessarily approaches that have been previously conceived pursued. Therefore, unless otherwise indicated, it should not be assumed that any of the approaches described in this section qualify as prior art merely by virtue c inclusion in this section.

[004] In the modern age of manufacturing and material science, there has been a continuous quest for finding sustainable alternatives to conventional materials th only meet the desired mechanical and physical properties but also leave a smaller environmental footprint. Traditional materials such as pure plastics and metals, v offering a plethora of advantages in terms of strength, durability, and versatility, also pose significant environmental challenges, ranging from resource depletion to management issues

View Application Status