Patent Search

Invention Title	Colloidal Droplet Mixes Involving Anisotropic Interactions and an Analysis of Periodic Behavioural Components
Publication Number	35/2023
Publication Date	01/09/2023
Publication Type	INA
Application Number	202341050832
Application Filing Date	27/07/2023
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	CHEMICAL
Classification (IPC)	G16C0060000000, G06F0030200000, G16C0020300000, G06F0111080000, G16B0005000000

Inventor

Name	Address	Country
V.Saritha, Assistant Professor / Department of H&S, Neil Gogte Institute of Technology.	Neil Gogte Institute of Technology, Peerzadiguda, Uppal, Hyderabad, Telangana-500039.	India
Dr. Kaki Soujanya, Associate Professor in Chemistry / Department of H&S, CMR College of Engineering & Technology.	CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana-501401.	India
Thudi Ramesh, Assistant Professor in Chemistry / Department of H&S, Malla Reddy Engineering College (Autonomous).	Malla Reddy Engineering College (Autonomous), Maisammaguda, Secunderabad, Hyderabad, Telangana-500100.	India
N Kundana, Assistant Professor in Chemistry / Department of BS&H, B.V.Raju Institute of Technology.	B.V.Raju Institute of Technology, Vishnupur, Narsapur, Medak Dist, Hyderabad, Telangana-502313.	India
Dr.K.Santosh Kumar, Assistant Professor in Chemistry / Department of Freshman Engineering, Geethanjali College of Engineering and Technology.	Geethanjali College of Engineering and Technology, Cheeryal, Keesara, Medchal, Telangana-501301.	India
D.Venkat Ramulu, Assistant Professor in Chemistry / Department of H&S, Malla Reddy Engineering College (Autonomous).	Malla Reddy Engineering College (Autonomous), Maisammaguda, Secunderabad, Hyderabad, Telangana-500100.	India
Dr.V.N.S.R.Venkateswararao, Associate Professor / Department of Chemistry, Institute of Aeronautical Engineering.	Institute of Aeronautical Engineering, Dundigal Road, Hyderabad, Telangana-500043.	India
Dr.Srinu.Bhoomandla, Assistant Professor in Chemistry / Department of Freshman Engineering, Geethanjali College of Engineering and Technology.	Geethanjali College of Engineering and Technology, Cheeryal, Keesara, Medchal, Telangana-501301.	India

Applicant

Name	Address	Country
V.Saritha, Assistant Professor / Department of H&S, Neil Gogte Institute of Technology.	Neil Gogte Institute of Technology, Peerzadiguda, Uppal, Hyderabad, Telangana-500039.	India
Dr. Kaki Soujanya, Associate Professor in Chemistry / Department of H&S, CMR College of Engineering & Technology.	CMR College of Engineering & Technology, Kandlakoya, Medchal, Hyderabad, Telangana-501401.	India
Thudi Ramesh, Assistant Professor in Chemistry / Department of H&S, Malla Reddy Engineering College (Autonomous).	Malla Reddy Engineering College (Autonomous), Maisammaguda, Secunderabad, Hyderabad, Telangana-500100.	India
N Kundana, Assistant Professor in Chemistry / Department of BS&H, B.V.Raju Institute of Technology.	B.V.Raju Institute of Technology, Vishnupur, Narsapur, Medak Dist, Hyderabad, Telangana-502313.	India
Dr.K.Santosh Kumar, Assistant Professor in Chemistry / Department of Freshman Engineering, Geethanjali College of Engineering and Technology.	Geethanjali College of Engineering and Technology, Cheeryal, Keesara, Medchal, Telangana-501301.	India
D.Venkat Ramulu, Assistant Professor in Chemistry / Department of H&S, Malla Reddy Engineering College (Autonomous).	Malla Reddy Engineering College (Autonomous), Maisammaguda, Secunderabad, Hyderabad, Telangana-500100.	India
Dr.V.N.S.R.Venkateswararao, Associate Professor / Department of Chemistry, Institute of Aeronautical Engineering.	Institute of Aeronautical Engineering, Dundigal Road, Hyderabad, Telangana-500043.	India
Dr.Srinu.Bhoomandla, Assistant Professor in Chemistry / Department of Freshman Engineering, Geethanjali College of Engineering and Technology.	Geethanjali College of Engineering and Technology, Cheeryal, Keesara, Medchal, Telangana-501301.	India

Abstract:

Abstract The dynamics of tetrahedral symmetric droplets and scattered colloidal particles in two-component systems. The research employs Monte Carlo simulations stable crystal structures while accommodating colloid fluid dispersion. Anisotropic colloid-droplet interactions are seen in the simulations, revealing a complex phase with both gaseous and liquid ZnS present. This mismatch is due to the predetermined pressure addressed in the computational simulations. It is observed in higher a size ratios. The applications in materials research and medication delivery are possible, and the study sheds light on the behaviour of binary mixes. Overall, there are experimental and theory methods used today that can be used to study how colloidal pairs interact with each other. Because of these methods, scientists know more colloidal particles behave when they are in a solution. They have also made it possible to make new materials with properties that can be changed to fit various uses.

Complete Specification

Description:Colloidal Droplet Mixes Involving Anisotropic Interactions and an Analysis of Periodic Behavioural Components

Field and Background of the Invention

Systems with colloidal particles or droplets can be considered binary mixtures or simply "binary." The nature and strength of the interplay between these two comp lead to various complex structures. Droplets are little globules of liquid that exist in another liquid that is an immiscible medium. At the same time, colloidal particle constitute microscopic things that are frequently scattered in another medium. Physical and chemical behaviours not seen before can arise when these two phases combine in the same media. Structures form due to this interaction; typically, the colloids adhere to the droplets due to a combination of forces. "patchy colloids" d a specific class of colloidal particles interacting with their surroundings in a random, patchy pattern. Droplets can be attracted to specific regions of the colloid surfa creating 3D patterns. Droplets behave like hard spheres derived from physical chemistry that views particles as solid and impenetrable barriers to the surrounding surface. Metropolis Monte Carlo models are frequently used to grasp the dynamics of such binary combinations. They give a systematic, in-depth description of the mechanism's microstates that could potentially use to describe the behaviour of colloidal droplet mixes and anticipate the possible structures that can emerge in th systems. Binary mixes of patchy colloids, including emulsion droplets, possess a great interest in the domains of material science along with chemical engineering b of the variety of forms they can produce. When properly modulated, colloidal dispersion with droplet contact can serve as a lever of control that controls the colloid crystal framework, allowing for development of progressively more complex structures.

Mixing binary hard-sphere colloid droplets formed a few different stable crystal structures. The atomic configurations of compounds like ZnS, CaF2 and the droplet-

View Application Status