Fields medal, 2022

July 6, 2022
In news– Ukrainian mathematician Maryna Viazovska was named as one of four recipients of the 2022 Fields Medal.
Winners of the medal-2022

- The IMU recognised Viazovska's work on the sphere-packing problem in 8 and 24 dimensions.
- Previously, the problem had been solved for only three dimensions or fewer.
- **The other winners are** French mathematician Hugo Duminil-Copin of the University of Geneva; Korean-American June Huh of Princeton; and Briton James Maynard of the University of Oxford.
- **Viazovska, 37, is only the second female Fields Medalist, after the Iranian Maryam Mirzakhani in 2014**.

What is the Fields Medal?

- **The Fields Medal is awarded by the International Mathematical Union (IMU)**, an international non-governmental and non-profit scientific organisation that aims to promote international cooperation in mathematics.
- **It is awarded every four years to one or more mathematicians under the age of 40** in recognition of "outstanding **mathematical achievement** for existing work and for the promise of future achievement".
- The **winners are announced at the International Congress of Mathematicians (ICM)**, which was supposed to be held in Russia this year, but was moved to Helsinki.
- The **honour carries a physical medal of 14K gold, 63.5 mm in diameter and weighing 169 g**, and with a unit price of approximately **5,500 Canadian dollars**.
- There is also a **cash award of CAD 15,000.**
- The obverse of the medal is embossed with the **head of**

Archimedes facing right, and the Latin words

- The **1924 ICM in Toronto adopted a resolution that at each conference, two gold medals would be awarded** to recognise outstanding mathematical achievement.
- **The Canadian mathematician Prof J C Fields,** who was secretary of the 1924 Congress, later **donated funds to establish the medals,** which were **named in his honour.**
- The Fields Medal Symposium is organised by the Fields Institute, Toronto, Canada.
- **Among the more than 60 mathematicians who have been awarded the Fields Medal since 1936, there are two of Indian origin — Akshay Venkatesh** of the Institute for Advanced Study at Princeton, **who won in 2018,** and **Manjul Bhargava of the Department of Mathematics at Princeton University, in 2014.**
- Venkatesh was awarded the Medal "for his synthesis of analytic number theory, homogeneous dynamics, topology, and representation theory, which has resolved long-standing problems in areas such as the equidistribution of arithmetic objects".
- Bhargava was honoured for "developing powerful new methods in the geometry of numbers, which he applied to count rings of small rank and to bound the average rank of elliptic curves".

International Mathematical Union (IMU)-

- **IMU is an international non-governmental and non-profit scientific organization,** with the purpose of promoting international cooperation in mathematics.
- **It is a member of the International Science Council (ISC).**
- IMU endorses ISC's Principle of Freedom, Responsibility and Universality of Science.
- The first steps towards the formation of the IMU were taken in 1919 in Brussels at the Constitutive Assembly of the International Research Council (IRC).

- In accordance with the program approved in Brussels, the IMU was founded during the International Congress of Mathematicians in Strasbourg on September 20, 1920.