*** Name Origin:**

Flerovium is a superheavy artificial chemical element with symbol Fl and atomic number 114. It is an extremely radioactive synthetic element. The element is named after the Flerov Laboratory of Nuclear Reactions of the Joint Institute for Nuclear Research in Dubna, Russia, where the element was discovered in 1998. The name of the laboratory, in turn, honours the Russian physicist Georgy Flyorov (Флёров in Cyrillic, hence the transliteration of "yo" to "e"). The name was adopted by IUPAC on 30 May 2012.

In the periodic table of the elements, it is a transactinide element in the p-block. It is a member of the 7th period and is the heaviest known member of the carbon group. Initial chemical studies performed in 2007–2008 indicated that flerovium was unexpectedly volatile for a group 14 element;[10] in preliminary results it even seemed to exhibit properties similar to those of the noble gases.[11] More recent results show that flerovium's reaction with gold is similar to that of copernicium, showing that it is a very volatile element that may even be gaseous at standard temperature and pressure, that it would show metallic properties, consistent with it being the heavier homologue of lead, and that it would be the least reactive metal in group 14.

About 90 atoms of flerovium have been observed: 58 were synthesized directly, and the rest were made from the radioactive decay of heavier elements. All of these flerovium atoms have been shown to have mass numbers from 284 to 289. The most stable known flerovium isotope, flerovium-289, has a half-life of around 2.6 seconds, but it is possible that this isotope may have a nuclear isomer with a longer half-life of 66 seconds; this would be one of the longest half-lives of any isotope of a superheavy element. Flerovium is predicted to be near the centre of the theorized island of stability, and it is expected that heavier flerovium isotopes, especially the possibly doubly magic flerovium-298, may have even longer half-lives.

## * Discovery:

Flerovium was first synthesized in December 1998 by a team of scientists at the Joint Institute for Nuclear Research (JINR) in Dubna, Russia, led by Yuri Oganessian, who bombarded a target of plutonium-244 with accelerated nuclei of calcium-48:

$$^{244}_{94}\mathrm{Pu} + {}^{48}_{20}\mathrm{Ca} \rightarrow {}^{292}_{114}\mathrm{Fl}^{*} \rightarrow {}^{289}_{114}\mathrm{Fl} + 3\,{}^{1}_{0}\mathrm{n}$$

A single atom of flerovium, decaying by alpha emission with a lifetime of 30.4 seconds, was detected. The decay energy measured was 9.71 MeV, giving an expected half-life of 2–23 s.[15] This observation was assigned to the isotope flerovium-289 and was published in January 1999.[15] The experiment was later repeated, but an isotope with these decay properties was never found again and hence the exact identity of this activity is unknown. It is possible that it was due to the metastable isomer $^{289m}\mathrm{Fl}$.[16][17]

Glenn T. Seaborg, a scientist at the Lawrence Berkeley National Laboratory who had been involved in work to synthesize such superheavy elements, had said in December 1997 that "one

of his longest-lasting and most cherished dreams was to see one of these magic elements";[12] he was told of the synthesis of flerovium by his colleague Albert Ghiorso soon after its publication in 1999. Ghiorso later recalled:[18]

*** Uses:**

None

*** Additional Notes:**

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