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Abstracts of Short Communications and Posters

Section:

5. Differential Geometry and Global Analysis

1991 MS Classification:

Manturov, V. O.

Vertical Atoms, Chord Diagrams, and Knots

Atom is a notion, characterizing Morse functions on 2-dimensional manifolds. Atom is vertical if it is generated by function of height in $\mathbf{R}^3$.
We give the criterion whether atom is vertical, list all the atoms with 4 vertices, and select vertical ones among them.
Vertical atoms are connected with knots unlike non-vertical atoms. We prove that there exists the natural surjection from the set of vertical atoms on the set of knots.
Atoms are connected with so-called f-graphs. We prove, that if an atom is characterized by chord diagram, then it is vertical iff the chords of its chord diagram can be divided in two parts, such that the edges of the same part don't intersect each other.