Meet-irreducibility of congruence lattices of prime-cycled algebras

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Let A be a given finite set. The system of all congruences of an algebra (A, F), ordered by inclusion, forms a lattice $\mathrm{Con}(A, F)$. Similarly, the system of all lattices $\mathrm{Con}(A, F)$ with a given base set A forms a lattice $\mathcal{E}_A$. It is known that all meet-irreducible elements of $\mathcal{E}_A$ are congruence lattices of monounary algebras. In some cases, necessary and sufficient conditions of meet-irreducibility of $\mathrm{Con}(A, f)$ were already proven. Namely, if (A, f) is a connected algebra, if each element of (A, f) maps into a cycle, or if each cycle of (A, f) contains at most 2 elements. Characterization of all meet-irreducible elements in the $\mathcal{E}_A$ remains an open problem. In this talk, we present our results related to meet-irreducibility of congruence lattices of monounary algebras such that each cycle contains prime number of elements.

References

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