At the Boundary of Algebra and Logic: A History of $\aleph_1$-free Groups

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$\aleph_1$-free groups, abelian groups whose countable subgroups are free, play a central role in Shelah's celebrated proof that the Whitehead problem is undecidable (1974). Since then, set-theoretic constructions of $\aleph_1$-free groups with additional properties have become a staple, providing examples and counterexamples to a number of important questions. In this overview talk, we will trace the history of $\aleph_1$-free groups, discuss some of the set-theoretic techniques used, and tackle the central conceptual question: What makes $\aleph_1$-free groups that particularly susceptible to set theory in the first place?