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Leo Margolis* (leo.margolis@mathematik.uni-stuttgart.de), Fachbereich Mathematik, IAZ, Pfaffenwaldring 57, 70569 Stuttgart, Germany. *Zassenhaus Conjecture and Prime Graph Question for Integral Group Rings.*

Let G be a finite group and $V(\mathbb{Z}G)$ the normalized units in the integral group ring of G , i.e. the units whose coefficients sum up to 1. The main open problem concerning torsion units in $V(\mathbb{Z}G)$ is the so called Zassenhaus Conjecture:

For any torsion unit u in $V(\mathbb{Z}G)$ there exists an unit in the rational group algebra of G conjugating u onto an element of G .

At a conference dedicated to the 65th birthday of D. S. Passman W. Kimmerle formulated a much weaker version of the Zassenhaus Conjecture, the so called Prime Graph Question:

If p and q are different primes and $V(\mathbb{Z}G)$ contains an element of order $p * q$, does G also contain an element of order $p * q$?

We will present recent results concerning these questions for non-solvable groups, in particular simple and almost simple groups. Moreover a new method to attack these questions will be presented which involves integral and modular representation theory. (Received July 27, 2015)