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Plasma Chemistry Round Robin: Progress Report MILES TURNER, Dublin City University, PLASMA CHEMISTRY ROUND ROBIN CONTRIBUTORS TEAM — A plasma chemistry model is usually formulated as a set of conservation equations for the number densities of species of interest, coupled in some way to a solution of the Boltzmann equation to determine the rates of electron impact processes. In isolation this is one of the most basic and widely used plasma models, but such models also form an important component of more elaborate schemes, such as multi-dimensional simulations. Consequently, solving chemistry models is a basic task of computational low-temperature plasma physics. At GEC70, a report was made on a round robin exercise comparing different solutions of an elementary plasma chemistry model. Surprising disagreement was found. This paper reports on continuing investigations into the origin of these disagreements, including comparisons of various solution schemes with an exact stationary solution of the a coupled system of the Boltzmann equation and a simple plasma chemistry model.

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