

*Peculiar Comets Ejected Early In Solar System Formation*  
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Comet C/2016 R2 PanSTARRS presents an unusually high  $N_2/CO$  abundance ratio, as well as a heavy depletion in  $H_2O$ , making it the only known comet to have this composition. Two studies have independently estimated the possible origin of this comet from building blocks formed in a peculiar region in the protoplanetary disk, near the ice line of  $CO$  and  $N_2$ . Here we explore the potential fates of comets formed from these building blocks using a numerical simulation of early solar system formation and tracking the dynamics of these objects in the Jumping Neptune scenario. We find that objects formed in the region of the  $CO$ - and  $N_2$ - icelines are highly likely to be sent towards the Oort Cloud or ejected from the Solar System altogether on a relatively short timescale, thus offering a potential explanation for the scarcity of comets with R2's unique composition.