# Article information:

Atomistic mechanisms of chemical mechanical polishing of diamond (1 0 0) in aqueous H2O2/pure H2O: Molecular dynamics simulations using reactive force field (ReaxFF) - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S0927025618307122>

# Article summary:

1. The atom removal mechanism of CMP diamond was elucidated using ReaxFF molecular dynamics simulations.

2. Three types of C atom removal pathways were detected in the CMP process: CO, CO2 or C chain and C atom removal occurs on the first layer.

3. The oxidation of diamond surface plays a dual role in the removal of C atoms, and high pressure is conducive to the removal of C atoms.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Atomistic mechanisms of chemical mechanical polishing of diamond (1 0 0) in aqueous H2O2/pure H2O: Molecular dynamics simulations using reactive force field (ReaxFF)” provides an overview of the atom removal mechanism of chemical mechanical polishing (CMP) process on the diamond surface polished with a silica abrasive in aqueous H2O2/pure H2O as elucidated by ReaxFF molecular dynamics (MD) simulations. The article presents its findings in an objective manner, providing evidence for its claims and exploring counterarguments where applicable. It does not appear to be biased towards any particular point-of-view or opinion, nor does it contain any promotional content or partiality towards any particular product or service. Furthermore, it acknowledges potential risks associated with the use of certain chemicals and materials used in the process, such as H2O2 and silica abrasive, noting that they should be handled with caution.

The article is well-researched and reliable; however, there are some points that could have been explored further or presented more clearly. For example, while it mentions that three types of C atom removal pathways were detected in the CMP process – CO, CO2 or C chain – it does not provide any further details about these pathways or how they differ from one another. Additionally, while it mentions that high pressure is conducive to the removal of C atoms, it does not provide any evidence for this claim nor does it explore possible counterarguments to this statement.

In conclusion, overall this article is reliable and trustworthy; however, there are some points which could have been explored further or presented more clearly for a better understanding of its findings.

# Topics for further research:

* Chemical mechanical polishing pathways
* CMP process parameters
* Reactive force field simulations
* C atom removal mechanisms
* High pressure CMP
* H2O2/pure H2O CMP

# Report location:

<https://www.fullpicture.app/item/7c0f8367d30637d2c1d1a4aa80a4a2fa>