

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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INTEL CORPORATION  
Petitioner

v.

ZOND, LLC  
Patent Owner

U.S. Patent No. 7,604,716

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*Inter Partes* Review Case No. 2014-00523

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**PATENT OWNER'S PRELIMINARY RESPONSE  
UNDER 37 CFR § 42.107(a)**

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## I. Introduction

The present petition for *inter partes* review of U.S. Patent No. 7,604,716 (“the ‘716 patent”) is the last of four petitions filed by Intel challenging the ‘716 patent. This petition challenges six claims (19 – 24) that depend from independent claim 14, which Intel challenges in a separate petition number IPR2014-00522. Since the claims challenged here (19 – 24) all incorporate the limitations of parent claim 14, the Petition reiterates the same arguments asserted against claim 14 in the related IPR2014-00522. Since this Petition offers no new art or evidence against the elements of claim 14, the Petition should be denied on the basis of our response to IPR2014-00522, which we largely reproduce in this response.

In short, parent claim 14 requires, *inter alia*, a multi-stage ionization process in which neutral atoms in a weakly ionized gas are first excited from the ground state before being ionized to form a strongly ionized plasma, all without developing an electrical breakdown condition. This is in contrast to a more conventional ionization process in which atoms are ionized directly from the ground state, without first achieving an excited state.

The Petition challenges parent claim 14 based on two prior art references, Mozgrin<sup>1</sup> and Wang,<sup>2</sup> that were already considered by the Patent Office, combined with a prior art patent by Kudryavtsev.<sup>3</sup> Neither Mozgrin nor Wang discuss or even hint of such an ionization process. So the Petition cites to Kudryavtsev as alleged proof that Mozgrin and Wang inherently implement the claimed multi-stage ionization. But the Petition falls far short of proving such inherency. As we will explain below, Kudryavtsev predicts that his tubular electrode structure may or may not yield multi-stage ionization depending on a variety of conditions, namely, the gas pressure  $p$ , the radius  $R$  of the tubular electrode structure, the strength of the applied electric field  $E$ , and the density of ground state argon atoms,  $n_1$ . Therefore Kudryavtsev does not prove that Mozgrin's or Wang's radically different electrode structures and operating conditions would inherently provide the claimed multi-stage ionization.

For example, both Mozgrin and Wang use electrodes that are much more closely spaced than Kudryavtsev's electrodes, and which were immersed

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<sup>1</sup> Ex. 1303, Mozgrin.

<sup>2</sup> Ex. 1304, Wang patent No. 6,413,382 ("Wang").

<sup>3</sup> Ex. 1305, Kudryavtsev.

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