**DESCRIPTION**

*Vacuum* is an international rapid publications journal with a focus on short communication. All papers are peer-reviewed, with the review process for short communication geared towards very fast turnaround times. The journal also published full research papers, thematic issues and selected papers from leading conferences.

A report in *Vacuum* should represent a major advance in an area that involves a **controlled environment** at pressures of one atmosphere or below.

The scope of the journal includes:

1. **Vacuum**; original developments in vacuum pumping and instrumentation, vacuum measurement, vacuum gas dynamics, gas-surface interactions, surface treatment for UHV applications and low outgassing, vacuum melting, sintering, and vacuum metrology. Technology and solutions for large-scale facilities (e.g., particle accelerators and fusion devices). New instrumentation (e.g., detectors and electron microscopes).
2. **Plasma science**; advances in PVD, CVD, plasma-assisted CVD, ion sources, deposition processes and analysis.
3. **Surface science**; surface engineering, surface chemistry, surface analysis, crystal growth, ion-surface interactions and etching, nanometer-scale processing, surface modification.

The aim of the short communications is to enable researchers to rapidly share their most exciting work with their colleagues. The expected time from submission to final decision is approximately **6.4 weeks**.

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AUDIENCE

Surface Scientists, Materials Scientists.

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GUIDE FOR AUTHORS

INTRODUCTION

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2. Plasma science; advances in PVD, CVD, plasma-assisted CVD, ion sources, deposition processes and analysis.

3. Surface science; surface engineering, surface chemistry, surface analysis, crystal growth, ion-surface interactions and etching, nanometer-scale processing, surface modification.


**Types of Paper**

Vacuum will consider three types of peer-reviewed manuscripts:

1. Short Communications: should have the format of a letter (main text without headings) and are intended as brief reports of significant, original and timely research results, which require rapid publication. The submitted manuscripts should be kept concise and short; the number of figures and tables should also be kept to a minimum. See below for details. In considering a manuscript for publication, particular attention will be given to the originality of the research and the desirability of speedy publication and the clarity of the presentation. The editors will aim for a rapid review process and only manuscripts that need no changes or only minor revisions will be accepted.

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3. Besides these two types of manuscripts, Vacuum will publish reviews, thematic issues and a selection of conference papers. These contributions must have the Full Research Paper structure. Such contributions must be prepared in consultation with the special issues editor and can only be submitted after invitation by the guest editor for that issue.

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Pressure: Authors are asked to use bar (bar), millibar (mbar) or the pascal (Pa).
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1 bar = $10^5$ Pa exactly
1 millibar (mbar) = 100 Pa exactly.

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The pascal can be combined with other SI units to give the units for other quantities commonly measured in vacuum science and technology. Some examples of these quantities are given below.

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The SI unit for volumetric rate of flow such as is used when expressing the speed of a vacuum pump is cubic metre per second ($m^3 \, s^{-1}$). The speed of most mechanical pumps is expressed in terms of cubic metre per hour ($m^3 \, h^{-1}$).

$$1 \, m^3 \, h^{-1} = \frac{1}{3600} \, m^3 \, s^{-1} = 0.000278 \, m^3 \, s^{-1}.$$  

The speed of most high vacuum pumps such as diffusion and turbomolecular pumps is expressed in terms of liter per second ($l \, s^{-1}$).

$$1 \, l \, s^{-1} = 10^{-3} \, m^3 \, s^{-1}.$$  

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| Quantity measured in (2) | Multiply by (3) Resulting number in (4) Multiply column (3) by (5) Resulting number in |
|---------------------------|-----------------------------------------------|-----------------------------------------------|
| torr 133.322 Pa 0.01 mbar mm Hg 133.322 Pa 0.01 mbar micron 0.133322 Pa 0.01 mbar technical atmospheres (kgf cm$^{-2}$) 98.0665 kPa 10 mbar m$^{-3}$ h$^{-1}$ 0.000278 m$^3$ s$^{-1}$ l$^{-1}$ 0.001 m$^3$ s$^{-1}$ | torr 1 $l \, s^{-1}$ 0.133322 Pa $m^3 \, s^{-1}$ 10 mbar $l \, s^{-1}$ standard atmosphere (cm$^3$ s$^{-1}$) 0.101325 Pa m$^3$ s$^{-1}$ 10 mbar $l \, s^{-1}$ torr 1 $cm^{-2}$ 1333.22 Pa m$^3$ s$^{-1}$ m$^{-2}$ 0.001 mbar $l \, s^{-1} \, cm^{-2}$ |

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