

# Wind needle generator

At 15 mm needle-net distance, the needle-net electrode structure ionic wind generator shows a maximum energy efficiency value of 2.19%. A metal circular plate is attached on the needle electrode to change the spatial electric field distribution, increase the field intensity of the discharge gap, and promote the particle collision.

Moreover, the energy efficiency of such a small needle-ring ionic wind pump is not sensitive to both the electrical driving mode and the inlet blockage. All these characteristics make needle-ring ionic wind pumps a viable option for applications that have space limitations and require consistent performance.

Zhang et al. [15]. investigated the ionic wind velocity variation of a blower with a "needle-ring" structure at various discharge spacings, and found that the wind velocity in the collector's center was greatest when the discharge spacing was 5 mm. Wang et al. [16]. developed a compact "multi-needle-mesh" ionic fan that significantly increased the ionic wind ...

Wind Needle (????????, Windonidoru?) is a burst-style arte used by characters in Tales of Graces. The caster summons a row of green crosses in front of them. This arte is effective against birds. Tales of Graces - Pascal, Bat Specter, Cursed Bowman, Luvah (Wind Needle) Tales of Asteria - Pascal Japanese Description: ????? User: Pascal ...

The parallel design can boost the volume flow of the ionic wind by providing a greater cross-sectional area. The above research also shows that the "needle-ring" ionic wind ...

We present a simple and efficient airflow generator utilizing the effect of ion wind by generating simultaneously both the positive and negative ions from two sharp electrodes mounted parallel to ...

At the applied potential of 9 kV, the designed multi-needle to ring type ionic wind generator can keep the heated plate below 20°C from the maximum allowable limit (85°C). ...

A tri-needle/ring ionic wind generator was developed to improve the heat dissipation condition of bulbs. The operation characteristics of the ionic wind generator, such as the electrode gap ...

serial connection of multiple needle-to-cylinder ionic wind generators can increase the airflow velocity. Kawamoto et al. [19] used a needle-plate-type ionic wind generator to study the ionic wind flow, heat-transfer enhancement, and rules of ozone generation. In Kawamoto's work, the collector electrode is a plate with a hole in the center. Qiu

As the generator is continuously running, it keeps supplying more and more negative ions at a fast speed. The

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ions running away form a wind called "electric wind" which blows away (radially outward) from the generator. By attaching the conductor or needle, you have created an electric wind. Generate Statics. The wind is strong enough for

Wang et al. [26] proposed an ionic wind generator with a needle-to-net electrode arrangement for LED chip cooling. In their parametric study, the discharge distance, applied voltage, and discharge power had an important influence on ionic wind cooling performance. An optimized ionic wind generator had a maximum wind velocity of 2.97 m/s and its ...

Moreau et al. [18] reported that the serial connection of multiple needle-to-cylinder ionic wind generators can increase the airflow velocity. Kawamoto et al. [19] used a needle-plate-type ionic wind generator to study the ionic wind flow, heat-transfer enhancement, and rules of ozone generation. In Kawamoto's work, the collector electrode is a ...

In this work, a DC powered needle-net electrode structure ionic wind generator is built. The energy efficiency and wind speed of the ionic wind generator are optimized by ...

bearing failures in wind turbine generators due to stray electrical currents. Insulated ceramic bearings eliminate electrolytic corrosion (commonly called fluting)and extend bearing life. (Generator: The device that converts rotational energy into electrical energy.) ... needle roller bearings that simultaneously provide high reliability

Time-averaged ionic wind velocity. The coming section focuses on the time-averaged velocity of the ionic wind induced by the needle-to-plate DBD.

Among various electrodes, this paper focuses on needle-ring ionic wind pumps because of their high flexibility in the number and configuration of the needles [17],[20][21][22][23] and, thus, high ...

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Chen et al. [19] manufactured a needle-mesh ionic wind generator for LED chip cooling, with a needle electrode having six types of different tip curvatures. The effects of electrode configuration, including the needle tip curvature, vertical separation height of the electrodes, and tilt angle on the cooling performance, were investigated and analyzed.

In this paper, an ionic wind generator, constructed with needle-net electrode structure and powered by high-voltage positive dielectric current (DC) power supply, is built for cooling of a metal ...

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Ionic wind generators have shown significant application potential in devices for cooling, air actuation, and flow control. In this study, a needle-to-ring electrode ionic wind generator with ...

An ion wind generator with a needle to parallel plate was fabricated for the experiment. The electrode intervals, needle positions and length of the plates were controlled to measure the velocity in various conditions, as shown in Fig. 3, Fig. 4, respectively. The needle electrode and the plate electrode were made of pure steel. Table 1 shows the

Therefore, an ion wind generator was suggested for use as a new cooling device in this study. The characteristics of the ion wind from the needle to parallel plate electrodes were analyzed for developing optimized cooling devices. Temperature changes induced by the ion wind were measured under various conditions for quantitative analysis.

It is found that the wind velocity and energy efficiency can be improved from 1.90 m/s to 2.35 m/s, and 1.87% to 3.14%, at same applied voltage and needle-net distance. ...

In order to study the cooling performance of ionic wind on a Light Emitting Diode (LED), an ionic wind generator with a needles-ring electrode configuration was set up. A cylindrical heat sink for ...

Ionic wind cooling for electronic elements is a relevant research field. In order to study the cooling performance of ionic wind on a Light Emitting Diode (LED), an ionic wind generator with a needles-ring electrode configuration was set up. A cylindrical heat sink for the heat dissipation of a heating film representing the LED chip was also manufactured. Following ...

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