COOLING A TARGET USING ELECTRONS

RELATED APPLICATION

This application claims benefit under 35 U.S.C. § 119(e) to U.S. Provisional Application Serial No. 62/011,994, entitled "SYSTEM AND METHOD FOR COOLING A TARGET," filed June 13, 2014, the entire content of which is incorporated herein by reference.

TECHNICAL FIELD

This invention relates generally to thermodynamics, and more particularly to cooling a target using electrons.

BACKGROUND

Certain applications may include targets that are heated to a temperature that causes deformation of the material of the target. However, deformation of the target adversely affects performance and efficiency, and may result in failure.

SUMMARY OF INVENTION

According to a first aspect of the present invention, there is provided a method, comprising: impinging a plurality of particles on a target such that electrons are emitted from the target; transporting the electrons from the target to a heat sink through a transporting medium, wherein the target and the heat sink are separated by a distance; cooling the electrons using the heat sink; and returning the electrons from the heat sink to the target.

According to a second aspect of the present invention, there is provided a system, comprising: a heat sink configured to cool electrons, the electrons being

emitted from a target in response to an impingement of a plurality of particles on the target, wherein the heat sink and the target are separated by a distance; and a return member configured to return the electrons from the heat sink to the target, the return member configured to couple to the heat sink and the target.

According to a third aspect of the present invention, there is provided a system, comprising: a heat sink configured to cool electrons, the electrons being emitted from a leading edge of a wing of an aerial vehicle in response to an impingement of air on the leading edge of the wing, wherein the heat sink is separated from the leading edge of the wing by a distance; and a return member configured to return the electrons from the heat sink to the leading edge of the wing, the return member configured to couple to the heat sink and the leading edge of the wing.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present disclosure and for further features and advantages thereof, reference is now made to the following description taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a diagram illustrating an example environment in which electrons of a target are cooled, according to certain embodiments of the present disclosure;

FIGURE 2 is a diagram illustrating an example embodiment in which the target of FIGURE 1 may be a leading edge of a wing of an aerial vehicle, according to certain embodiments of the present disclosure;