WHAT IS CLAIMED IS:

1. An airfoil repair system, comprising:

a cropped airfoil comprising a cropped airfoil attachment section and a cropped first side opposite a cropped second side, the cropped first side and the cropped second side each extending axially between a cropped first edge and a cropped second edge to define a cropped chord length;

an airfoil repair component comprising a body having a repair first side opposite a repair second side, the body defining a repair attachment section for attaching the airfoil repair component to the cropped airfoil at the cropped airfoil attachment section, the repair attachment section extending axially between a repair first edge and a repair second edge to define a repair chord length, the repair attachment section being oversized with respect to the cropped airfoil attachment section such that the repair chord length is longer than the cropped chord length;

a repair component electrode for receipt of the airfoil repair component, the repair component electrode comprising a repair component electrode insert removable with respect to a repair component electrode body, the repair component electrode insert surrounding at least a portion of the airfoil repair component; and

a retention assembly for positioning the airfoil repair component with respect to the cropped airfoil,

wherein the repair component electrode insert defines an inert gas manifold for receipt of an inert gas and a plurality of grooves extending from the inert gas manifold along the repair component electrode insert.

2. The airfoil repair system of claim 1, wherein the repair component electrode insert comprises a first half and a second half, each of the first half and the second half defining a portion of the inert gas manifold for receipt of the inert gas and each of the first half and the second half defining the plurality of grooves extending from the inert gas manifold along the respective half of the repair component electrode insert.

3. The airfoil repair system of claim 1, further comprising a cropped airfoil electrode for receipt of the cropped airfoil, wherein the cropped airfoil electrode comprises a dovetail block, a cropped airfoil electrode body, and the retention assembly, wherein the cropped airfoil comprises

a dovetail receivable within the dovetail block, and wherein the dovetail block is removably secured to the cropped airfoil electrode body by one-handed manipulation of the retention assembly.

4. The airfoil repair system of claim 1, wherein the repair component electrode body defines a plurality of serrations, each serration having a change in direction.

5. The airfoil repair system of claim 1, wherein a blisk comprises the cropped airfoil, and wherein the retention assembly comprises a cropped airfoil portion for positioning the airfoil repair component with respect to the blisk.

6. The airfoil repair system of claim 1, wherein the retention assembly comprises a feedback system including at least one feedback device located to determine at least one of a size and a position of the airfoil repair component with respect to the cropped airfoil.

7. The airfoil repair system of claim 1, wherein the retention assembly comprises an alignment assembly, wherein the alignment assembly is configured to adjust the position of the airfoil repair component with respect to the cropped airfoil along one or more independent axes defined by the cropped airfoil.

8. The airfoil repair system of claim 1, wherein the repair component electrode comprises a point constraint, a line constraint, and a planar restraint with respect to the airfoil repair component, and wherein the point constraint is configured to be manipulated to release the airfoil repair component for removal from the repair component electrode.

9. An electrode assembly, comprising:

a repair component electrode;

a cropped airfoil electrode; and

a retention assembly and a dovetail block for positioning a cropped airfoil relative to an airfoil repair component to provide a stabilization force,

wherein the repair component electrode receives the airfoil repair component, and the

cropped airfoil electrode receives the cropped airfoil, and

wherein an electrical current and a compressive axial force are passed through the repair component electrode, with the airfoil repair component positioned therein, and the cropped airfoil electrode, with the cropped airfoil positioned therein, to join the airfoil repair component to the cropped airfoil,

wherein the repair component electrode defines an inert gas manifold for receipt of an inert gas and a plurality of grooves extending from the inert gas manifold along the repair component electrode.