ferring the biological material from a collection plate to the ultimate destination of the biological material.

[0182] Continuing to refer to FIGS. **12**A, **12**B, and **12**C, electrospinning can produce streams that can chaotically whip around. A high voltage, for example, but not limited to, +10 kV or greater, can be applied to the tip of needle **1081**V as material such as polymer is being extruded from the tip of needle **1081**V. As the material leaves the tip in a stream, for example, a 10 μm stream, the material can form a Taylor cone before it advances toward collector plate **10815** (FIG. **12**A) or tissue **1081**HH (FIG. **12**C). Different kinds of materials can have different characteristics that can impact the resulting pattern on collector plate **10815** (FIG. **12**A) or tissue **1081**HH (FIG. **12**C). To address the spin that the stream takes on after the extrusion, a torque generated by an electrostatic field can be applied to the stream. The torque can be applied by, for example, slowly adjusting the phase angle of RF signal **1081**BB on each tank circuit **1081**A. RF signal **1081**BB transmitted across tank circuits **1081**A can create voltage gradients. The voltage gradient magnitude and the physical geometry of tank circuit **1081**A can, in combination, result in a torque that can overcome the natural whipping motion of the stream.

[0183] Referring now to FIG. **12**D, array **1081**D can be controlled by processor **1081**RR, and can execute in at least two modes selected by switch **1081**SS: rotational stabilization/spinner and raster generation. As phase lock oscillator **1081**BB provides a signal destined for array **1081**D, the signal can be divided by, for example, in-phase power dividers **1081**NN, to produce as many signals as there are loop antennas **1081**B in array **1081**D. Each signal can proceed through a path that can include voltage variable phase shifter **1081**CC, voltage variable attenuator **1081**W, power amplifier **1081**PP, and power level measure **1081**QQ until the filtered signal is picked up by loop antenna **1081**B. In raster generation mode, the devices between phase lock oscillator **1081**BB and loop antenna **1081**B can focus the signal preparing it for rotational stabilization mode. In rotational stabilization mode, the phase angle of the signal can be slowly shifted to enable accurate placement of the stream of material onto surface **10815** or tissue **1081**HH.

[0184] Configurations of the present teachings are directed to computer systems for accomplishing the methods discussed in the description herein, and to computer readable media containing programs for accomplishing these methods. The raw data and results can be stored for future retrieval and processing, printed, displayed, transferred to another computer, and/or transferred elsewhere. Communications links can be wired or wireless, for example, using cellular communication systems, military communications systems, and satellite communications systems. Parts of systems **500**A (FIG. **1**), **500** (FIG. **1**A), **513** (FIG. **1**B), **515** (FIG. **1**C), **517** (FIG. **1**D), and other systems of the present teachings, for example, can operate on a computer having a variable number of CPUs. Other alternative computer platforms can be used.

[0185] The present embodiment is also directed to software for accomplishing the methods discussed herein, and computer readable media storing software for accomplishing these methods. The various modules described herein can be accomplished on the same CPU, or can be accomplished on different CPUs. In compliance with the statute, the present embodiment has been described in language more or less specific as to structural and methodical features. It is to be understood, however, that the present embodiment is not limited to the specific features shown and described, since the means herein disclosed comprise preferred forms of putting the present embodiment into effect.

[0186] Method **6300** (FIGS. **6**C-**6**E) and other methods of the present teachings, can be, in whole or in part, implemented electronically. Control and data information can be electronically executed and stored on at least one computer-readable medium. The systems can be implemented to execute on at least one computer node in at least one live communications network. Common forms of at least one computer-readable medium can include, for example, but not be limited to, a floppy disk, a flexible disk, a hard disk, magnetic tape, or any other magnetic medium, a compact disk read only memory or any other optical medium, punched cards, paper tape, or any other physical medium with patterns of holes, a random access memory, a programmable read only memory, an erasable programmable read only memory (EPROM), a Flash EPROM, or any other memory chip or cartridge, or any other medium from which a computer can read. Further, the at least one computer readable medium can contain graphs in any form, subject to appropriate licenses where necessary, including, but not limited to, Graphic Interchange Format (GIF), Joint Photographic Experts Group (JPEG), Portable Network Graphics (PNG), Scalable Vector Graphics (SVG), and Tagged Image File Format (TIFF).

[0187] While the present teachings have been described above in terms of specific embodiments, it is to be understood that they are not limited to these disclosed embodiments. Many modifications and other embodiments will come to mind to those skilled in the art to which this pertains, and which are intended to be and are covered by both this disclosure and the appended claims. It is intended that the scope of the present teachings should be determined by proper interpretation and construction of the appended claims and their legal equivalents, as understood by those of skill in the art relying upon the disclosure in this specification and the attached drawings.

1. A method for automatically growing tissue using a system having a controller, the tissue having tissue characteristics, the method comprising:

automatically selecting, by the controller, based on the tissue characteristics, cells associated with the tissue;

automatically enabling, by the controller, expanding the cells;

automatically enabling, by the controller, creating at least one printable protein bio-ink;

automatically enabling, by the controller, creating at least one protein from the at least one printable protein bio-ink;

automatically enabling, by the controller, creating at least one tissue bio-ink including the expanded cells and the at least one protein;

automatically enabling, by the controller, creating at least one tissue growth medium mixture including the at least one protein;

automatically enabling, by the controller, printing the at least one tissue bio-ink in the at least one tissue growth medium mixture;

automatically enabling, by the controller, growing the tissue from the printed at least one tissue bio-ink in the at least one tissue growth medium mixture; and