CLAIMS

1. A fused silica optical fiber for carrying UV laser light, wherein the optical fiber has a distal end, wherein the distal end is configured as an inverted cone capable of emitting the UV laser light as a conical beam.

2. The optical fiber of claim 1, wherein the emitted conical beam of UV laser light impinges onto an inner wall of a tubular anatomical structure in a ring-shaped or annular configuration.

3. The optical fiber of claim 1, wherein the distal end of the optical fiber comprises a tip coupled to the distal end of the optical fiber and in optical communication therewith, wherein the tip is configured as an inverted cone capable of emitting the UV laser light as a conical beam.

4. The optical fiber of claim 3, wherein the tip coupled to the distal end of the optical fiber is diamond.

5. The optical fiber of claim 1, wherein said optical fiber is capable of emitting into water an annular beam at an emission angle β of about 14° up to 56° from a central longitudinal axis of the optical fiber.

6. A dilation system for dilating a tubular anatomical structure using UV laser light, said dilation system comprising an optical fiber and a UV laser light source, the optical fiber having a distal end which is conical in shape and capable of emitting the UV laser light as a conical beam.

7. The dilation system of claim 6, wherein the dilation system includes a balloon catheter.

8. The dilation system of claim 7 wherein the optical fiber is centered within the balloon catheter.

9. The dilation system of claim 6, wherein the optical fiber has a distal end configured as an inverted cone.

10. The dilation system of claim 6, wherein the optical fiber has a distal end configured as an external projecting cone, which is capable of emitting into water an annular beam at an emission angle β up to 71.5° from a central longitudinal axis of the optical fiber.

11. The dilation system of claim 6, wherein the optical fiber comprises a tip coupled to the optical fiber and in optical communication therewith, wherein the tip is configured as being conical in shape.

12. The dilation system of claim 6, wherein the dilation system includes a thrombectomy device.