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- (71) Applicant: **SENO MEDICAL INSTRUMENTS, INC.**
[US/US]; 5253 Prue Road, Suite 315, San Antonio, Texas
78240 (US).
- (72) Inventors: **ZALEV, Jason**; 19 Thornsbury Circle,
Thornhill, Ontario L4J 5C1 (CA). **CLINGMAN, Bryan**;
19950 Huebner Road, Apt. 1209, San Antonio, Texas
78258 (US). **HERZOG, Donald**; 148 Fern Avenue,
Collingswood, New Jersey 08108 (US).
- (74) Agents: **KURTZ, Richard** et al.; 450 SO. Orange Ave.,
Suite 650, Orlando, Florida 32801 (US).
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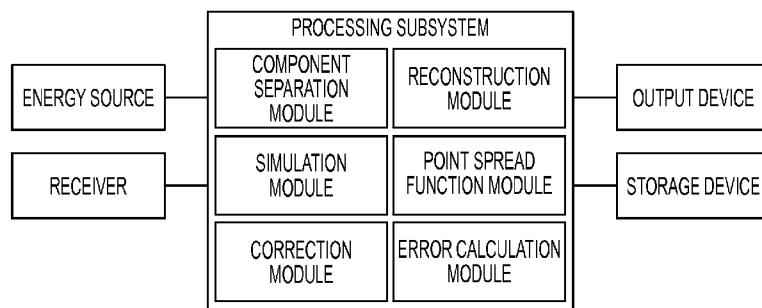


FIG. 1

(57) Abstract: A system is provided for component separation. In an embodiment, a light source or other source of electromagnetic energy delivers energy to a volume of tissue. A transducer array or other sensor receives a resulting acoustic signal, and a processing subsystem processes the acoustic signal to separate a direct acoustic return component from a secondary acoustic return component of the acoustic signal. An output and/or storage device presents and/or stores information about the direct acoustic return component, the secondary acoustic return component, or both. Other embodiments include a coded probe, a probe having an isolator that produces a wavefront, a sensor for measuring intensity of an acoustic wave produced by absorbed photons, and a system that receives acoustic signals from surface targets to determine an optical parameter of the volume.