



Special Issue Reprint

Ultrasound B-mode Imaging: Beamforming and Image Formation Techniques

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Ultrasound medical imaging stands out among the other diagnostic imaging modalities for its patient-friendliness, high temporal resolution, low cost, and absence of ionizing radiation. On the other hand, it may still suffer from limited detail level, low signal-to-noise ratio, and narrow field-of-view. In the last decade, new beamforming and image reconstruction techniques have emerged which aim at improving resolution, contrast, and clutter suppression, especially in difficult-to-image patients. Nevertheless, achieving a higher image quality is of the utmost importance in diagnostic ultrasound medical imaging, and further developments are still indispensable. From this point of view, a crucial role can be played by novel beamforming techniques as well as by non-conventional image formation techniques (e.g., advanced transmission strategies, and compounding, coded, and harmonic imaging). This Special Issue includes novel contributions on both ultrasound beamforming and image formation techniques, particularly addressed at improving B-mode image quality and related diagnostic content. This indeed represents a hot topic in the ultrasound imaging community, and further active research in this field is expected, where many challenges still persist.



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