

(54) Title of the invention : A SYSTEM AND A METHOD TO CREATE AND MODULATE COAXIAL SYNTHETIC JETS.

(51) International classification	:F21K0009230000, F21V0029600000, H04N0009310000, C23C0024100000, B64C0021040000	(71)Name of Applicant : 1)INDIAN INSTITUTE OF TECHNOLOGY BHUBANESWAR Address of Applicant :Indian Institute of Technology Bhubaneswar Samantapuri, Bhubaneswar, Orissa, India. PIN- 751013 Orissa India
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(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

ABSTRACT TITLE:A SYSTEM AND A METHOD TO CREATE AND MODULATE COAXIAL SYNTHETIC JETS. The present invention relates to a Coaxial Synthetic Jet (CSJ) system and method to create and modulate flow jets for desired cooling effect of miniature electronic components. More particularly, the present invention is directed to provide a system and method to create and modulate Coaxial Synthetic Jet (CSJ) wherein two piezo-electric diaphragms driven Single Acting Synthetic Jets (SASJs) are arranged coaxially with 0° orientation angle having two openings (inner and annular orifices). Two diaphragms are mounted independently so that they can be operated at desired amplitude and frequency independently without affecting the flow of the either cavity. Also, various phase differences ranging from 0° to 180° among the two diaphragms can be achieved. The versatility in designing the CSJ with different area ratios can be achieved with this configuration, and also the CSJ can be operated at various mass flux ratios. Moreover, the design is compact so that it can be accommodated easily inside any electronic component for cooling purpose, which can ensure heat extraction in the era of miniaturization. (Figure 1)

No. of Pages : 28 No. of Claims : 11