RESEARCH PUBLICATIONS:

1. **S.C.Ram**, K.Chattopadhyay, I.Chakrabarty. **"Microstructures and High Temperature Mechanical Properties of A356-Mg_2Si Functionally Graded Composites In As-Cast And Artificially Aged (T6) Conditions"**. Journal of Alloys and Compounds, 805 (2019) 454-470.

2. **S.C.Ram,** K**.**Chattopadhyay, I.Chakrabarty. "**High Temperature Tensile Properties of Centrifugally Cast In-situ Al-Mg_2Si Functionally Graded Composites for Automotive Cylinder Block Liners".** Journal of Alloys and Compounds, 724 (2017) 84-97.

3. **S.C.Ram,** K**.**Chattopadhyay, I.Chakrabarty. **"Effect of Magnesium Content on the Microstructure and Dry Sliding Wear Behavior of Centrifugally Cast Functionally Graded A356-Mg_2Si in situ Composites".** Mater. Res. Express 5 (2018) 046535.

4. **S.C.Ram,** K**.**Chattopadhyay, I.Chakrabarty. "**Dry Sliding Wear Behavior of A356 alloy/Mg_2Sip Functionally Graded in-situ Composites: Effect of Processing Conditions.**" Journal of Tribology in Industry, Vol.38, No.3, September 2016, Pages (371-384).

5. **S.C.Ram,** K**.**Chattopadhyay, I.Chakrabarty**, "Effect on Microstructures, Hardness and SDAS of Primary Mg_2Si/Al-Si Eutectic Phases of Centrifugally Cast Functionally Graded Al-(Mg_2Si)p in-situ Composites",** *IOP Conf. Ser.: Mater. Sci. Eng.* (2018) 390 012012.

6. I.Chakrabarty, **S.C. Ram,** K.Chattopadhyay, **"Study on Centrifugally Cast Functionally Graded Al-Mg2Si in-Situ Composites"** Proceedings of the Liquid Metal Processing & Casting Conference 2019(LMPC-2019), Organized at **Birmingham, U.K**., ISBN-10: 0-87339-771-1, 13: 978-0-87339-771-1,PP-345-354 September 8-11, 2019.

7. **S.C.Ram**, K.Chattopadhyay, I.Chakrabarty, **"Functionally Graded Al-(Mg_2Si)P in-Situ Composites-A Review"**, Proceedings(ICMMSA-2014), at MNNIT,Allahabad,U.P., **McGraw Hill** Education(India) P. Limited., ISBN(13)978-93-392-2019- 8,Pages-30-35, Dec 22-24,2014.

8. **S.C.Ram,** K**.**Chattopadhyay, I.Chakrabarty**,. "Cast *In-situ* Al-Si-Mg_2Si Metal Matrix Composites for Automotive Engine Applications- A Review**".(to be communicated ,2020).

9. **S.C.Ram,** K**.**Chattopadhyay, I.Chakrabarty**,. "High Temperature Wear Behavior of Al-Mg_2Si in-situ Functionally Graded Composites for Automotive Engine**".(to be communicated ,2020).

APPENDIX:

Stoichiometric calculation of wt.% Mg_2Si from wt.% Mg addition

Considering, the reaction between Mg and Si forming Mg_2Si,

$$2Mg + Si = Mg_2Si$$

Now, atomic mass of Mg = 24.3 g; Si = 28.0 g

So, molar mass of Mg_2Si = 76.7 g/mol

∴ 48.6 g Mg produces = 76.7 g Mg_2Si

∴ i) For Al-4 Mg_2Si, Mg requirement = $\frac{48.6 \, x \, 4}{76.7}$ = 2.5 g

ii) For Al-8 Mg_2Si, Mg requirement = $\frac{48.6 \, x \, 8}{76.7}$ = 5.0 g

iii) For Al-12 Mg_2Si, Mg requirement = $\frac{48.6 \, x \, 12}{76.7}$ = 7.6 g

iv) For Al-16 Mg_2Si, Mg requirement = $\frac{48.6 \, x \, 16}{76.7}$ = 10.1 g