**Response to Reviewers**

Reviewer A:

ADDITIONAL COMMENTS

Please indicate the page numbers for suggested corrections.

Please, be as specific as possible if major correction by the author(s) is recommended! :

 -Line 28: Offer more keywords, and to be more specific.

-Line 188 (Figure 3c): Concentration of Cr, wt% instead of Concentration of Cr wt%.

REPORT:

 Presented manuscript deals with the use of the carbon dioxide laser to be applied for analysis of cast iron by the laser induced breakdown spectroscopy (LIBS) method.

The manuscript is written correctly, in a clear and concise way. All procedures are described precisely. Experimental measurements were performed correctly. The literature references list is adequate and comprehensive. The analytical method proposed here is relatively simple and cost effective, although not so precise and accurate as some other ones (like ICP), still with certain advantages and a great potential for further development in some fields.

In my opinion English should be improved, although I am not an expert in English.

In my opinion, this manuscript should:

 Be published after language correction by the author(s)

If manuscript is suitable for publishing, referees recommendation:

 Original scientific paper

We thank the referee for the positive evaluation of this work. We have revised our manuscript in accordance with the reviewer’s suggestions. Our point-by-point response is given below. In the revised manuscript the changes made to the text are highlighted yellow.

**COMMENT 1:**

-Line 28: Offer more keywords, and to be more specific.

**RESPONSE:** Keywords list modified.

**COMMENT 2:**

-Line 188 (Figure 3c): Concentration of Cr, wt% instead of Concentration of Cr wt%.

**RESPONSE:** We have corrected the caption in Fig. 3c.

**COMMENT 3:**

In my opinion English should be improved.

**RESPONSE:** We have done English editing. Several sentences were reformulated, and some typing and spelling errors were corrected.

Reviewer B:

ADDITIONAL COMMENTS

Please indicate the page numbers for suggested corrections.

Please, be as specific as possible if major correction by the author(s) is recommended! :

 Page 1 line 3: Indicate the first author's affiliation.

Page 2 line 34: If the authors give the percentage of C with one figure accuracy (2-4), I wonder what is the accuracy of Si percentage, if it is given to two significant figures it should read (0.25-3.0) or if it is also to the one figure, then it should be (0.2 or 0.3 - 3).

Page 9, lines 207,208: If authors define average bias (or accuracy) by equation 209, they should also define what they consider under relative standard deviation (%RSD) and give the equation.

Page 10, line 222: Explanation is needed for what you do consider as standard deviation of the background and how did you determine it?

Page 11, line 232: In Table III it is not clear which rows of LOD belong to which element.

Page 11, line 244: Did you mean exceeding instead of exciding?

Page 13, line 321: Volume should be bolded (128) not italic.

REPORT:

 The manuscript explored the possibilities of LIBS technique for determination of low element concentrations in cast iron. It uses several standard samples of the cast iron in order to determine LODs of Cu, Ni and Cr. The main conclusion is that the analytical figures of merit of the studied LIBS system may be considered as a satisfying for commercial industrial applications.

In my opinion, this manuscript should:

 be published after minor revision without additional review

If manuscript is suitable for publishing, referees recommendation :

 Original scientific paper

We are grateful for the positive comments regarding our paper. We have revised our manuscript in accordance with the reviewer’s suggestions. A point-by-point response is given below. In the revised manuscript the changes made to the text are highlighted yellow.

**COMMENT 1:**

Page 1 line 3: Indicate the first author's affiliation.

**RESPONSE:** The first author's affiliation is added.

**COMMENT 2:**

Page 2 line 34: If the authors give the percentage of C with one figure accuracy (2-4), I wonder what is the accuracy of Si percentage, if it is given to two significant figures it should read (0.25-3.0) or if it is also to the one figure, then it should be (0.2 or 0.3 - 3).

**RESPONSE:** Corrected. The Si concentration is 0.3 – 3 %.

**COMMENT 3:**

Page 9, lines 207,208: If authors define average bias (or accuracy) by equation 209, they should also define what they consider under relative standard deviation (%RSD) and give the equation.

**RESPONSE:** The equation for RSD is given and explained.

**COMMENT 4:**

Page 10, line 222: Explanation is needed for what you do consider as standard deviation of the background and how did you determine it?

**RESPONSE:** We have added a description of a calculation procedure used for determination of the standard deviation of the continuum background (noise):

The standard deviation of the continuum background was calculated by fitting a linear curve to the continuum intensity over narrow spectral regions (10 to 20 pixels or about 0.15 nm) on both sides of the atomic emission line, and then calculating the root mean square (rms) values based on the pixel-to-pixel variations from the linear fit. For each emission line of interest, the final rms noise was taken as the average of these two values.

**COMMENT 5:**

Page 11, line 232: In Table III it is not clear which rows of LOD belong to which element.

**RESPONSE:** In order to improve readability, the format of Table III was modified.

**COMMENT 6:**

Page 11, line 244: Did you mean exceeding instead of exciding?

**RESPONSE:** Spelling error corrected.

**COMMENT 7:**

Page 13, line 321: Volume should be bolded (128) not italic.

**RESPONSE:** Typing error corrected.