

On the Strong Chromatic Index of Sparse Graphs
Responses to Referee Suggestions

We would like to thank the referees for their thorough reviews and helpful suggestions, which we feel have greatly improved the paper. We have otherwise corrected all typographical errors, and any suggestions not list below have been incorporated as suggested. Some specific comments follow.

Responses to Referee Suggestions

(1) **Page 7 line 1:** *what are u_1, \dots, u_8 ?*

– These should be v'_1, \dots, v'_8 . Fixed.

(2) **Page 8, the last paragraph in Section 2:** *Could you provide more detail on how to prove Theorem 1.10 (1)? As p could be a 2-vertex adjacent to two 7-threads, there could be a 15-thread between two 3-vertices. I dont see how to get enough charge for those 2-vertices.*

– We are not sure if the referee meant indeed Theorem 1.10 (1) or 1.10 (2). For (2): notice that the charge assigned to p is 9 in this case and p even sends some excess charge to the face. So p behaves more like a vertex of degree 3 than a vertex of degree 2. The reducible configuration cannot contain it as an internal vertex, but it does not need any charge from incident faces. For (1), we have included a complete proof in the revised version.

(3) **Page 12, line 4:** *Maybe illustrate an explicit coloring for these graphs?*

– We added a figure with explicit colorings of those graphs.

(4) *“By (R1)” instead of “By Rule R1”*

– “Rule RX” has been changed to “(RX)” in all instances.

(5) **Page 8 and Page 12–14** *I means to delete “charge” in discharge rules and check the final charge for each vertex since the readers can understand that!*

– We have deleted the word charge in rules and in the sending description. We left it when it comes to the final charge.

(6) **Page 3, line -8:** *Give definition of “. . . to strongly edge-color the graph.”*

– rewritten so this confusing formulation is not used.

(7) **Page 15, line 24–25:** *Update reference [15].*

– Fixed together with several other citations that have changed since submission.