

Suggestions for Measure Paper

Abstract The abstract should be mostly about results with only a few words about techniques. Here is a possible alternative.

Let ℓ_k be k points in a line where each adjacent pair is one inch apart. If E^d is colored then a mono- i ℓ_k is a copy of ℓ_k where all k points are the colored i . The notation $E^d \rightarrow (\ell_{k_1}, \ell_{k_2}, \dots, \ell_{k_c})$ means that, for all c -colorings of E^d using colors in $[c]$, there is either a mono-1 ℓ_{k_1} or a mono-2 ℓ_{k_2} or $\dots$ a mono- c ℓ_{k_c} . It is well known that $E^2 \rightarrow (\ell_2, \ell_2, \ell_2, \ell_2)$. It is known that $E^2 \rightarrow (\ell_2, \ell_5)$. It is open to determine $E^2 \rightarrow (\ell_2, \ell_6)$. We show that for all measurable 3-colorings of E^2 there is either a mono-1 ℓ_2 or a mono-2 ℓ_6 . We denote this $E^2 \rightarrow_m (\ell_2, \ell_7)$.

We prove *USE WHAT YOU HAD IN THE ABSTRACT TO THE END OF THE ABSTRACT BUT THEN HAVE THE FOLLOWING CLOSING STATEMENT*

We build on the Fourier-analytic ... Vallentin.

1. Page 2. Your reason to study measurable colorings seem to be that there are tools with which to study them. That's a terrible reason.

You should talk about what is KNOWN and OPEN and then say that measurable colorings may give insight into what is really happening and that if you have a result for measurable colorings it shows that a counterexample be non-measurable

And THEN talk about the techniques—your passage about the techniques is good.

2. In the introduction you mention the result $E^2 \rightarrow (\ell_2, \ell_{6330})$. I thought you or others improved that.
3. There are so many results here that it got me dizzy. Two suggestions:
 - (a) Have a table of what's known for ALL colorings and what's known for MEASURABLE colorings. Just deal with lines.
 - (b) On page 3 you switch from lines to other configurations. The LINE stuff should be a subsection, and the OTHER stuff should be another subsection.

4. Page 4. After Theorem 9 you should have another subsection divider called *Techniques*
5. Page 4. You refer to the proof of Theorem 2 but you have not proven Theorem 2 yet. It looks like you are giving a sketch of it here. That's fine, but in Here is what you can do instead of the paragraph that begins *Theorem 2*

We prove Theorem 2 as an illustration of our method

Theorem 2. $E^2 \rightarrow_m (\ell_2, \ell_2, \ell_3)$.

Sketch of Proof

DO THE SKETCH

End of Sketch of Proof (*or whatever your end-of-proof symbol is.*)

6. Page 16. The title of Section 5 should be
Proofs of Theorems 3,4,5, and 6.

7. Page 34. Problem 3. I don't know what the word Infimal is. If its a real word then FINE. If not then fix its spelling or whatnot.
8. I don't see an Acknowledgements section. Add one to the paper, after the paper proper but before the appendices.

William Gasarch

All of your proofreaders (name them, don't just say 'our proofreaders')

Anyone else who has helped you.

NSF REU grant NS-2150382.