

Introduction to PET Instrumentation

TO THE EDITOR: There is an error in your article "Introduction to PET Instrumentation" (1). I am not sure if it is a typographical error on your part—or if Dr. Turkington presented you with some erroneous text. On page 5 under the Heading "Projections," the article says, "For a ring with n detectors, there are n-squared/2 ways to pair up the detectors . . ." This is incorrect. I believe it should say, "there are (n-squared minus n)/2 detectors." If the article is correct, I would appreciate a description of how this can be. Thanks.

REFERENCES

1. Turkington, TG. Introduction to PET instrumentation. *JNMT*.2001;29:4–11.

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REPLY: Thanks for your message. You are correct in that $n^2/2$ is not the exact formula. The exact formula is $(n^2 - n)/2$, as you proposed.

For the large numbers of detectors typical in current PET detector rings, $n^2/2$ (what I gave) is essentially the same as $n(n - 1)/2$ (the exact formula). For example, $600 \cdot 600/2 = 180000$ and $600 \cdot 599/2 = 179700$. I used the simpler formula because it is a very good approximation and because I think it makes the point more clearly that the number of pairs goes very closely with the square of the number of detectors. I probably should have said "approximately $n^2/2$."

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