X.J. Yeo and coworkers report on a method to efficiently generate thermal light out of a laser source. They use the multiplexing of random phases from a single laser source by cascading unbalanced Mach-Zehnder fibre interferometers. They calculate the expected $g^{(2)}(\tau)$ values and then measure these value with their experimental setup. They show that they maintain a narrow linewidth while having a higher conversion efficiency compared to other methods of generating thermal light.

Thermal light exhibits strong natural intensity fluctuations, known as photon bunching, which are not present in ordinary coherent (Poissonian) light. These fluctuations enable intensity-intensity correlation measurements (HBT experiment), which can be used in sensing techniques. Such correlation-based sensing and imaging schemes are generally more resilient to turbulence and noise, since they rely on intensity correlations rather than phase information, unlike conventional interferometric measurements where maintaining phase stability is essential. Therefore, the controlled and efficient generation of thermal light is relevant for practical sensing applications.
In this context, the present work attempts to address a practical gap by generating bright and fibre-compatible (spatially single-mode) thermal light. Most existing approaches typically do not provide both high brightness and efficient single-mode compatibility simultaneously.

Despite this relevance of the work, there are still some concerns and comments regarding the work:

1. The introduction should emphasise more strongly the importance of thermal (photon-bunched) light in the context of sensing applications. A clearer discussion of why bright thermal light is desirable in practical sensing scenarios can improve the motivation of the manuscript.
2. In the introduction section, it should be clarified that scattering-based pseudothermal light generation produces spatially multimode (or incoherent mixture) light. Consequently, the scattered light generally does not couple efficiently into a single-mode fibre. The limitation is therefore not merely intrinsic loss, but spatial-mode mismatch.
3. The authors note that their method is 9 orders of magnitude more efficient than previous works, however, if we investigate Figure 2 there is the STL method which seems to be close in efficiency while having the a similar spectral linewidth. Can the authors comment more on why the claim of 9 orders of magnitude hold?
4. The mentioned coherence time in the manuscript, does not match with their datapoints in figure 2 (<10ns in text, >10ns in plot for 1550). In general, the authors comments very little on the coherence time and <1μs feels intuitively still quite small. How does this compare to other work and which values a desired to be achieved at least?
5. The authors give an equation for the expected $g^{(2)}(\tau = 0, n)$, and some measured values are given somewhere else in the text. This seems to be a

quite relevant point and a graphical representation of $g^{(2)}_{theory}(\tau = 0, n)$ and $g^{(2)}_{measurement}(\tau = 0, n)$ would improve the clarity on this aspect.

6. The reported value of g2(0) ≈ 1.8 after n=3 cascaded interferometers is still below the ideal thermal value of 2. It is not clear after how many cascaded interferometers g2(0) will approach close to 2 in this setup.

7. The feasibility of the proposed scheme relies critically on the coherence time of the laser source. To ensure incoherence between delayed copies, the delay differences must exceed the coherence time of the input laser. If the source has a long coherence time, achieving this condition would require larger path-length differences and potentially a larger number of cascaded Mach–Zehnder interferometers. In this situation, the total fibre length increases, insertion loss accumulates, and the setup becomes more sensitive to temperature and mechanical fluctuations. These factors could potentially affect the central claim of near-lossless operation.

8. For further clarity, the authors should comment on how the overall loss scales with the number of stages. Also, is there a practical upper limit on the coherence time for which the scheme remains efficient and stable?

9. The authors mention losses and polarisation mismatch in their experimental method. The effect of loss, loss mismatch, polarisation mismatch, unequal splitting ratios is not explored or mentioned. Can the authors comment on how these parameters affect the $g^{(2)}(\tau = 0, n)$. And what are realistic factors?

10. Related to the losses, how do the authors compensate for polarisation drift (or any temporally changing parameter) over time? Is this effect compensated, negligible, or actually affecting the measurement results?

The idea to generate thermal light via chained Mach-Zehnder interferometers is quite interesting, however, the experimental rigidity is not yet convincing to practicality of this method. On top of that is the claim of three orders of magnitude not clear enough to us since there are other methods mentioned in the paper that are closer by than these 9 orders of magnitude.

Due to that we advise significant rework addressing the experimental rigidity and our other points before we can properly consider recommendation for publication of this manuscript.