

### **Edited TeX manuscript**

```
\documentclass{article}
\begin{document}
```

```
\section{Introduction}
```

We know that according to the `\textbf{Theory of Relativity}` and Einstein's famous equation of mass-energy equivalence,

```
\begin{equation}
E=mc^{2},
\end{equation}
```

that the speed of light is constant and nothing can travel faster than light, which is  $3 \times 10^8$  m/s `\cite{R1,R2}`. However, while it remains true that the speed of light `\emph{in vacuum}` is constant, it can vary while travelling through different materials and might be significantly less than  $c$ . For example, the speed of light in water is only  $0.75c$  or 75% of what it is in vacuum. What is interesting is that matter can be accelerated beyond this speed, for example, in nuclear reactors and particle accelerators `\cite{R3,R4,R5}`. When that happens, that is, when a charged particle travels in a medium (actually a "dielectric") faster than what light can travel at, it gives rise to what is known as `\textbf{Cherenkov radiation}` `\cite{R6,R7}`, which in simple terms is an equivalent of a sonic boom for light. This radiation propagates in a cone whose half angle  $\theta$  can be expressed as

```
\begin{equation}
\cos \theta = \frac{1}{\eta \beta},
\end{equation}
```

where  $\eta$  is the refractive index of the medium and  $\beta$  is the ratio of the speed of the particle and the speed of light.

```
\end{document}
```

**Accompanying PDF showing edit in Track Changes**

```
\documentclass{article}
\begin{document}
```

```
\section{Introduction}
```

We ~~knew~~know that ~~from Einstein's popular equation, which is according to the \textbf{Theory of Relativity} that~~and Einstein's famous equation of mass and energy have equivalence relationship, that is,

```
\begin{equation}
E=mc^{2}.
\end{equation}
```

~~so~~that the speed of light is constant and nothing can travel faster than light, which is  $3 \times 10^8$  m/s <sup>\cite{R1,R2}</sup>. ~~But~~However, while it ~~reminds-remains true that the truth that the speed~~of light <sup>\emph{in vacuum}</sup> is constant, it can ~~change~~vary while travelling through ~~several material~~different materials and ~~is~~might be significantly less than  $c$ . ~~E.g., For example, the speed of light in water is only 0.75~~\emph{c}, that is,} or 75% <sup>of what it is in vacuum</sup>. ~~It~~What is interesting ~~to know is~~that matter can be ~~accelerated over~~accelerated beyond this speed, ~~like that for example, in nuclear reactions~~reactors and particle ~~accelerations~~accelerators <sup>\cite{R3,R4,R5}</sup>. When ~~such an event that~~happens, ~~that is, when a charged particle travels in a medium (say~~actually a "dielectric") faster than ~~what light can travel at,~~it gives rise to ~~commonly called~~what is known as <sup>\textbf{Cherenkov radiation}</sup> <sup>\cite{R6,R7}</sup>, ~~simply said this~~which in simple terms is an equivalent of ~~the~~a sonic boom for light. This radiation propagates ~~as~~in a cone whose half angle  $\theta$  can be expressed as:

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where  $\eta$  is the refractive index of the medium and  $\beta$  is the ratio of the speed of the particle and the speed of ~~the~~ light.

```
\end{document}
```

**Comment [A1]:** Please confirm that your intended meaning has been conveyed accurately.

**Comment [A2]:** Avoid using the abbreviated form "e.g." at the beginning of a sentence.

**Comment [A3]:** It is incorrect to place a colon after a preposition.